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The Manufacturing Confectioner

ONEER SPECIALIZED PUBLICATION FOR CONFECTIONERY MANUFACTURERS

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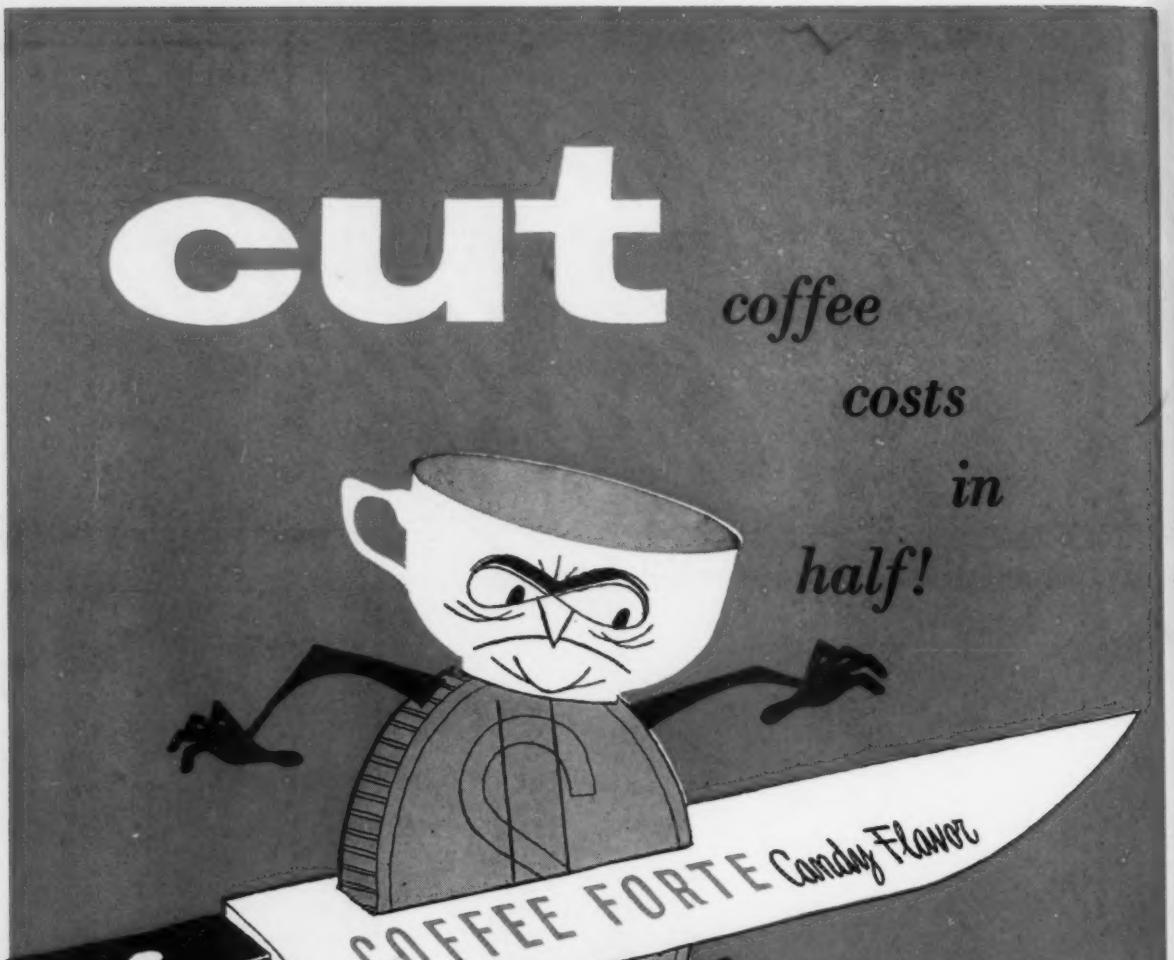
JUNE 1952



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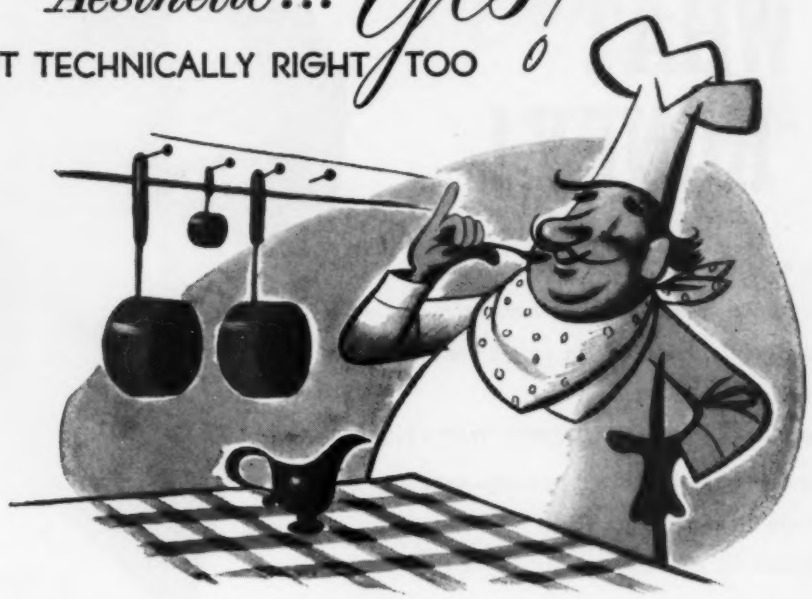

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The Manufacturing Confectioner

READ WHEREVER CANDY IS MADE

JUNE 1952
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COVER: Chicago "The Convention City." View of Michigan Avenue looking north from the Chicago River bridge. Wrigley Building in left foreground; Tribune Tower on the right. Tower of the Palmolive Building and the Lindbergh Beacon in the distance. Photo courtesy Chicago Association of Commerce.

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Editorial

Let's Be Practical

THE first week in June has come to mean Convention and Exposition time for confectioners. We salute the National Confectioners' Association on the eve of its 69th Annual Convention and the 26th Confectionery Industries Exposition held in conjunction.

We have heard that a substantial number of the exhibitors at the 1951 Exposition are in favor of holding the machinery show at two-year intervals. This group of manufacturers feels that the cost of annual exhibits has reached the point of diminishing returns.

We have but one duty: to assist in influencing opinion so that the best interests of the confectionery industry may be served.

Let's be Practical!

The Convention and Exposition, though sponsored by the NCA, in a sense belong to the entire confectionery industry. If some machinery manufacturers refuse to exhibit their equipment annually, then the Exposition must gradually deteriorate, eventually becoming a mediocre show. Expositions held at two-year intervals should appreciate in value. A larger number of equipment manufacturers would be attracted, and those presently exhibiting would be more willing to go "all out" to make a better show.

What about the attendance at a Convention without an Exposition? No doubt a drop would occur, especially at first. However, the Lehigh PMCA Conferences have no such machinery show. They are spirited, fast-moving affairs and so planned that no time is wasted. They have been highly successful and have found favor with alert candy men.

The annual Exposition has provided the NCA with needed financial support. The loss in revenue occasioned by holding the Exposition at two-year intervals could be met by an increase in dues, with, perhaps, a moderate increase in cost of exhibition space.

The question is: Should the Exposition be continued on its present annual basis or on a two-year basis?

A Laurel Wreath for the PMCA

THE Sixth Annual PMCA Conference, reported in part in this issue, was like the preceding conferences—*a success.*

These Lehigh meetings did not just happen, but resulted from careful planning and hard work. The program committee, Mr. Hans Dresel, Conference Chairman, and all PMCA members deserve the plaudits of all for their efforts.

THE MANUFACTURING CONFECTIONER hopes that the spirit and progressive attitude displayed by the PMCA will infect the entire confectionery industry.

Off the Record

THE other day a piece appeared in the Kansas City Star. A folksy type of success story, a la Horatio Alger. Mr. Richard B. Fowler told the story of Mr. and Mrs. Russell Stover under "Leaders In Our Town."

The Stover name has become known across the nation by the people who buy ten million pounds of Russell Stover candy each year. But success did not come by any easy route.

The terror of going or being "broke" did not bother these hardy individuals. Mr. Stover had learned how to make candy the hard way by doing it himself. Old time candy making methods were not precise, and he would be content with no method unless it were accurate and subject to exact control. The candy developed by Mr. Stover won a local reputation in Winnipeg. Business "boomed" until World War I restrictions stopped it.

Mr. Stover taught candy making to Mrs. Stover. He gained in experience through operating candy factories in Des Moines and Omaha. He proved the principle of employing inexperienced people who were free from outworn and set ideas. Then he trained them to his own standards of absolute accuracy.

Mr. Stover hit the "jack-pot" in 1921—but not with candy. He recognized the idea of Christian Nelson and developed that idea into the "hit confection of the century"—the Eskimo Pie. Money almost snowed the Stovers under, but patent infringements and legal battles melted away the money.

Again a new start in Denver, under the name of Mrs. Stover's Bungalow Candies, found Mrs. Stover in the kitchen with seven employees. Business spread by word of mouth. When it became commonplace for women's names to appear on candy boxes, "Russell" was substituted.

Today, the business is without a head boss. Russell Stover Candies is a partnership, or rather four partnerships, in Kansas City, Denver, Lincoln, and Memphis, with 35 persons sharing in its destiny. Twice a week the partners get together to thrash out their problems and make decisions.

Mr. and Mrs. Stover are vitally interested in candy, though they quite naturally are easing up a bit. As a tribute to the Stovers, the Hon. Harry P. Cain of Washington, inserted the Fowler story in the Congressional Record, February 4, 1952.

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to CANDY MANUFACTURERS!

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2. SEE YOUR WALTER BAKER REPRESENTATIVE, WHO WILL EXPLAIN THIS UNPRECEDENTED SERVICE TO YOU

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3. VISIT THE WALTER BAKER BOOTH, NO. 506, AT THE N. C. A. CONVENTION

or

4. TALK WITH WALTER BAKER REPRESENTATIVES AT THEIR SUITE IN THE BLACKSTONE HOTEL DURING CONVENTION WEEK

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Chocolate and Cocoa

CLEVELAND, DETROIT, LOS ANGELES, NEW YORK, PHILADELPHIA. BROKERS IN ALL PRINCIPAL CITIES.

Confectioners' Briefs

• **Frank Kobe** has been appointed to the newly created position of Director of research for Rockwood & Company, according to a recent announcement made by H. Russell Burbank, president. Mr. Kobe will devote most of his time in the development of new products and improvement of present products and processes. He is well qualified for his new position at Rockwood, having joined the company in 1936 after receiving a chemical engineering degree from the University of Dayton. He recently was given a degree in mechanical engineering from Brooklyn Polytechnic.

Mr. Kobe

• **D. Ghirardelli Chocolate Factory,** "Manufacturers of Chocolate Since 1852," is about to celebrate its 100th anniversary. The firm started with a store at Kearny and Washington Streets, San Francisco, and first advertised on June 18, 1852, a wide assortment of candy and syrups, ground coffee, jujube paste, guimauve paste, French bonbons, and "the very best green and dry fruits."

Domingo Ghiraradelli was born near Genoa, Italy, and served his apprenticeship as a confectioner. Later he moved to Lima, Peru, and it was there that his neighbor and friend, first tasted his chocolates, and later introduced them to America. The chocolate empire which was begun more than a hundred years ago has been carried on by six sons and daughters since the founder's death in 1894. More than 100 plant employees are proud of their lineal descent from early day workers in the factory.

• **Sydney Z. Hoffman,** Chicago candy broker, was killed recently in a traffic accident. Mr. Hoffman and his son, Sydney, Jr., as partners, represented Walter Baker Chocolate and Cocoa Division, General Foods, National Licorice, Howard Johnson and Dean Cough Drops in the Chicago area. He was a charter member and former president of the Chicago Candy Club and the Western Confectionery Salesmen's Association.

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in non-technical language

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Chicago 6, Ill.

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What Candies Sell Best in Minnesota?
"ALMOND CANDIES ARE MONEYMAKERS EVERYWHERE"
YOU EXPECT "TALL TALES" in the land of Paul Bunyan, but there's no exaggeration when they talk about the popularity of almond candies. In Minnesota, as in the other 47 states, the customers say, "I'll take the one with almonds".
"TALL SALES" EVERYWHERE. There's something about the combination of crisp, crunchy almonds with chocolate . . . or almonds with caramel or fondant . . . that makes folks reach first for the almond items in box candies, or for the almond bars at the candy counter.
QUALITY COUNTS. The nation's leading candymakers specify Blue Diamond almonds, and for good reasons. Dependable quality, uniform sizes, and the absence of foreign particles, dust, or bitters make "Blue Diamonds" your best bet. Our quality safeguards trim handling costs in your plant.
FREE FORMULA BOOK. Write for Blue Diamond samples and prices, and for this new 1952 Formula Book with 16 pages of tested formulas, plus actual size and color photos of almond varieties and processed items.
Giant carving of legendary Paul Bunyan at Lake Bemidji, Minn.
The nation's favorite candies are ALMOND CANDIES
BLUE DIAMOND ALMONDS
CALIFORNIA ALMOND GROWERS EXCHANGE ... Sacramento, Calif.
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Most Good
CANDY
Is Bought
for Women

Your Candy Can Must Have Plenty of SALES APPEAL

THE container that attracts the eye, attracts sales. Heekin artists and designers are outstanding in the creation of individually styled confection containers. Heekin's personal interest in your problem and Heekin's Personal Service are PLUS factors that do not appear on any order. Before you order lithographed cans again —talk with Heekin.

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1901 51 Years of Service 1952
THE HEEKIN CAN CO.
PLANTS AT CINCINNATI & NORWOOD, OHIO; CHESTNUT HILL, TENNESSEE; SPRINGDALE, ARKANSAS

• **Jean C. Corthesy** of Old Greenwich, Connecticut, has been elected managing director of Nestle Alimentana Co. of Cham and Vevey, Switzerland, and president of Unilac, Inc., of Stamford, Conn. and Panama City, Panama, top holding companies of the Nestle-Unilac group of manufacturers and distributors of milk, chocolate, coffee and other food products. Mr. Corthesy was promoted from vice-president and general manager of Unilac, Inc.

• **Mr. O. Clyde Ashley** died May 8, after a short illness. He was well known in the candy trade. Formerly superintendent of the Williamson Candy Company, Mr. Ashley was acquainted with wholesale and retail manufacturing problems. For the past few years he operated a confectionery store at 3126 West Madison Street, Chicago. He was the author of several articles on candy retailing which have appeared in THE MANUFACTURING CONFECTIONER.

• **Leon Finkle,** secretary of the Finkle Candy Company, Gloversville, New York, has been selected as the "outstanding junior executive in the tobacco, confectionery and allied industries," according to a recent announcement by the junior executive achievement committee of the National Association of Tobacco Distributors, Inc. The annual Kolodny award consists of $250 cash and a testimonial scroll.

• **Haelan Laboratories, Inc.,** is the new corporate name of Bowman Gum, Inc. This change was approved at the annual stockholder's meeting held early in April. All products sold by Bowman Gum will now be sold under the name of Bowman Gum Division of Haelan Laboratories, Inc. The Company's latest product, TABS-Chlorophyll Chewing Gum, retailing for two cents, will be sold under the name of Haelan Laboratories, Inc.

• **Chase Candy Company,** following its recent purchase of Nutrine Candy Co. and Shotwell Manufacturing Co. of Chicago, has made some changes in sales personnel to more completely cover the firm's enlarged operations. Homer L. Rothleitner, vice president, is being transferred to Chicago to direct salesmen in the area.

George A. Arnold has been appointed representative of the company in the state of Louisiana, excepting Shreveport.

Eight men, formerly with the Shotwell Company, have joined the Chase sales force: Tom Conrad, New York; Kenneth Perry, northern Indiana; Mel Wessel, part of St. Louis and eastern Missouri; A. J. Murray, western Ohio; William Abate, part of Pennsylvania and eastern New York; Andy Schmidt, part of eastern Pennsylvania, Maryland, District of Columbia and Southern New Jersey; A. M. Gold, western New York; H. C. Solomon, North and South Carolina.

Oscar Widmer is being transferred from San Jose, Cal. to the state of Tennessee. Marshall Follett has been employed to cover northern Illinois, except Chicago, and southern Wisconsin; W. H. Harden will succeed James Hughes in Alabama; N. C. Bishop is to cover western Oklahoma and the Panhandle area in Texas.

SUGAR in the "Cook" puts *Quality* in the Piece!

In today's keenly competitive market, allowing quality to slip may cause sales to dip.

So keep quality up—with sugar*!

Sugar is synonymous with candy of superior quality, in the mind of the consumer.

Sugar gives you 25 to 50% more sweetening power—provides excellent body and graining qualities—and is easier to use because it requires no special handling or storage facilities.

Now, when the maintenance of quality is so essential to the maintenance of volume, why risk uncertainty? With sugar you can be *sure* . . . sure of the quality, sure of the flavor, sure of consumer satisfaction!

*Sucrose

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Tank Car Fleet!

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STALEY'S exclusive conversion process makes *Sweetose*. Water-white, twice as sweet and three times as fluid as ordinary corn syrup, *Sweetose* has no flavor but sweetness. It can give your candies longer shelf-life, better texture and flavor, more eye appeal and sales appeal! Get the complete story of better candy—write for full details on *Sweetose* today!

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A high quality Confectioners' Corn Syrup, adaptable to standard candy formulas.

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Lecithin Concentrate gives better mixing, better flavor and moisture retention.

Staley's STARCHES
include a full line of improved confectioners' starches for cooking and moulding.

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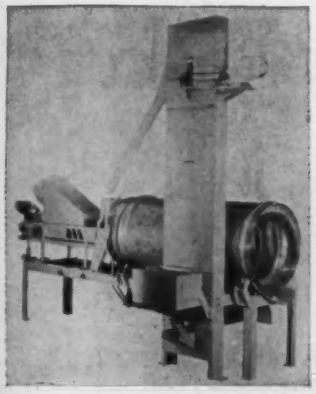
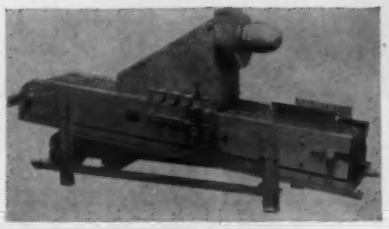
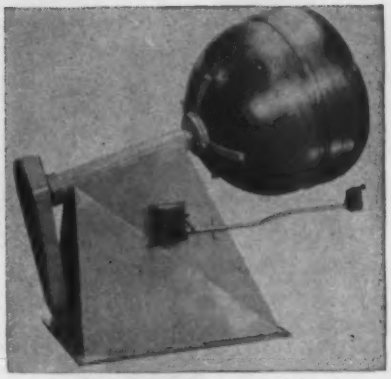


Sand your goods the Latini way!





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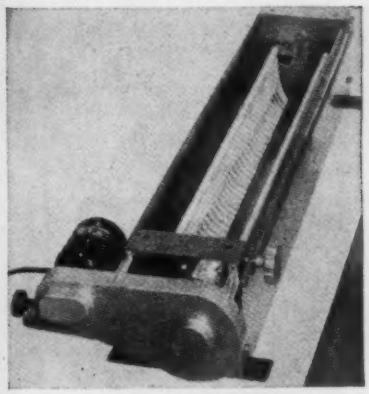
Guaranteed to properly sand the full output of a mogul! Enlarged steaming chamber. Non-corrosive metals wherever steam and sugar meet. Supplementary steaming brings out the natural brilliancy of sugar crystals and forms a protective film, simulating crystallized candies.

LATINI REVOLVING PAN

Unusual bowl shape permits 10% to 15% larger charges, alone paying for pan in a short time. Sanitary and sturdily built for a long silent life.



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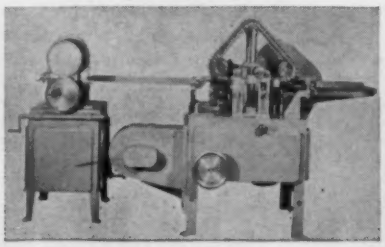
Versatile—variable speed drive, elevation control and 3 sets of decorating belts make a wide variety of markings.



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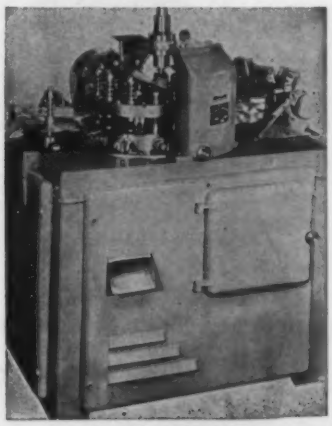
The most productive plastic machine built today!! Productive speeds up to 150 feet per minute.

Actual Production Figures:
Filled raspberries—1,200 lbs. per hour.
Solid goods—1,500 lbs. per hour.
Pulled Candies—900 lbs. per hour.



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200 perfect pops per minute with no scrap.
Interchangeable dies.
25% split-second weight control with every set of dies.
Wood or paper sticks.

NEW

A multiple sizer for all types of hard candies. Eliminates the need for the skilled spinner.

Chocolate Spraying Co., Inc. Chicago, Ill.

Representative:

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There are good reasons why you never risk your neck when you buy Empire folding cartons. Empire Box controls carton quality throughout production — from paperboard . . . made in our own mill . . . to finished product.

Empire Box keeps your costs under control, too, by utilizing up-to-date, more efficient production techniques. And Empire's multi-plant operation helps you save on shipping costs — an important money-saving factor.

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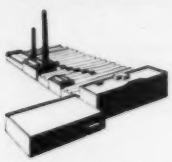
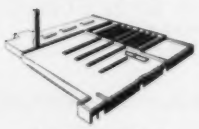
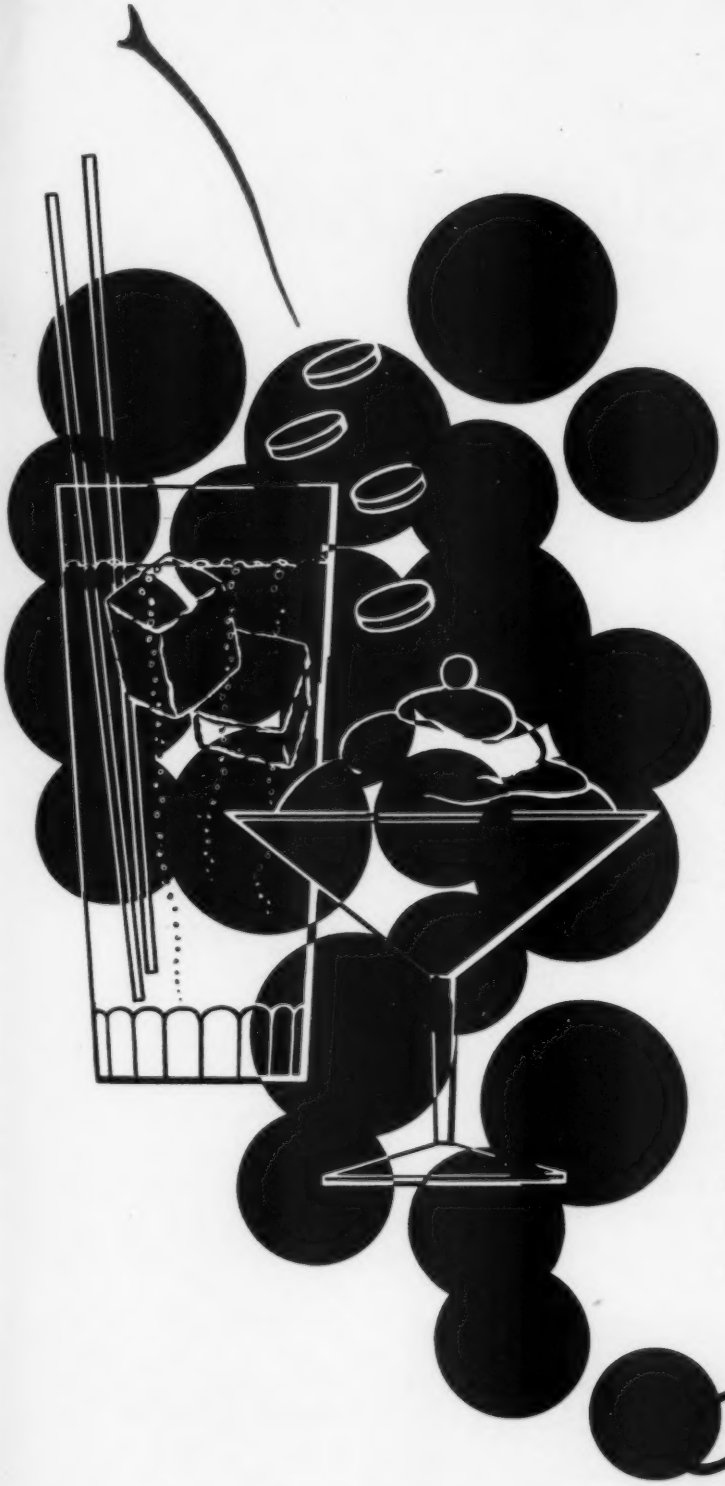


Garfield, N. J.

Stroudsburg, Pa.



South Bend, Ind.



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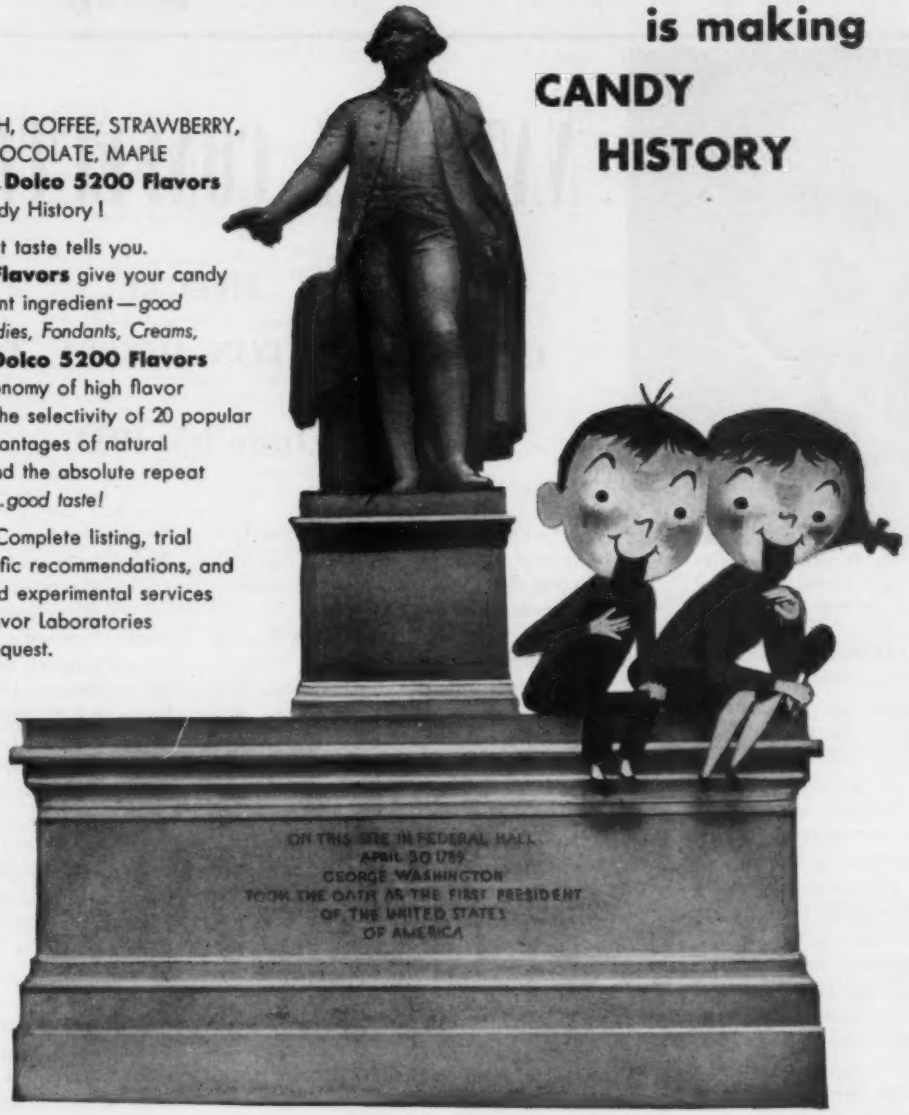
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The Manufacturing Confectioner

JUNE, 1952, Vol. XXXII No. 6

Mr. Theodore Stempfel
E. J. Brachs and Sons
General Chairman

NATIONAL CONFECTIONERS

Meet at

CONRAD HILTON HOTEL, CHICAGO

June 1-5, 1952

EMPHASIS on improved making and merchandising of candy will characterize the program to be offered at the National Confectioners' Association 69th Annual Convention, June 1 to 5, 1952 at the Conrad Hilton, Chicago, according to a recent announcement made by Theodore Stempfel, E. J. Brach and Sons, General Chairman.

Mr. Stempfel and his committee chairman have succeeded in bringing together many well-known speakers, to provide all attending the convention and exposition with plenty of informative discussions, as well as a lot of fun and entertainment. The committees are to be congratulated for their excellent work in planning the program.

Chicago radio comemntators and NCA members will combine talents in the dramtic presentation of "The Past-Present-Future of a Great Delicious Food Industry," which will open the series of business sessions Tuesday morning.

The first day's luncheon will be a highlight, for Dr. Robert E. Wilson, Chairman of the Board, Standard Oil Company (Indiana) will be the guest speaker. Dr. Wilson is well-known as a business leader in this country, and his "Ethics and Principles in Modern Business' is bound to be of interest to everyone.

Employment Relations and Ingredient Supplies will furnish the subjects to be discussed in the two Wednesday morning panel sessions. "The Meaning of 1952" will be the subject of the luncheon talk by Allan B. Kline, President, American Farm Bureau Federation.

The evening will be devoted to a Production Session, and the technical authorities represented can be counted on to uphold their fame on the subjects under discussion.

Thursday morning will cover technological developments and developments in ration confections, followed by a customer service panel under the guidance of V. H. Gies, Mars, Inc. and I. S. Shafer, Just Born, Inc. In additon representatives of associations interested in the distribution and sale of candy have been invited to participate in this panel.

The ladies have been provided with a three-day program of unusual interest to them, and will, of course, lend their charms to "The Candy Ball," which is the traditional unofficial closing of all NCA conventions.

THE MANUFACTURING CONFECTIONER takes this opportunity to welcome all confectioners to Chicago—our home city. A complete program is printed for your ready reference.

Hours of Exposition

Monday, June 2 — 2 p.m.-8 p.m.
Tuesday, June 3 —11 a.m.-6 p.m.
Wednesday, June 4—11 a.m.-8 p.m.
Thursday, June 5 —11 a.m.-5 p.m.
(See pages 68, 71, 72 for Exhibitors' Directory)

Special Ladies' Entertainment Program

Monday, June 2—
12 noon
Smorgasbord at the Kungsholm, followed by a performance of the Puppet Opera.

Tuesday, June 3—
3 p.m.
Keno and Tea Party, Tower Ball Room of The Conrad Hilton—prizes.

Wednesday, June 4—
12 noon
Fashion and Food at Field's, Wedgewood Room, Marshall Field & Co.

NCA Convention Program

Sunday, June 1

5:00 to 7:00 p.m.—NCA Sunday Get-Together, Grand Ballroom, Refreshments, Music, Dancing. Chairman, Sam Shankman, Executive Vice President, Leaf Brands.

Monday, June 2

9:00 a.m.—NCA Golf Tournament, Olympia Fields Country Club, Chicago, Illinois. Chairman, John G. Johnson, Walter H. Johnson Candy Co.

Tuesday, June 3

Morning Session • *North Ballroom*

9:30 a.m.—Film—Free Enterprise

10:00 a.m.—Official Opening of NCA 69th annual convention by Philip P. Gott, President of National Confectioners' Association.

10:10 a.m.—Program Plan by G. Lloyd Latten, General Manager, Schutter Candy Company, Chicago, Chairman, NCA 69th Convention Program Committee.

10:20 a.m.—*"The Past—Present—Future of a Great Delicious Food Industry"*.
A dramatic presentation in seven scenes performed by Chicago radio commentators, with panel observations by members and audience participation over a roving microphone.
Moderator: Theodore Stempfel, Vice President, E. J. Brach & Sons, Chicago, Chairman of NCA 69th Convention and 26th Confectionery Industries Exposition. Panel Members: Bob McCormack, President, Bobs Candy & Peanut Co., Albany, Ga.; Cecil H. McKinstry, President, Imperial Candy Co., Seattle; W. C. Dickmeyer, President, Wayne Candy Co., Fort Wayne, Ind.; Walter R. Keefe, Vice-President, Henry Heide, Inc., New York; William M. Noonan, Vice President, Stephen F. Whitman & Sons, Inc., Philadelphia.

12:00 noon—Adjournment.

12:30 p.m.—Opening Luncheon, Grand Ballroom. Presiding: Theodore Stempfel, E. J. Brach & Sons, Chicago.
Invocation.
Introduction of Honored Guests and Tribute to the Distributors of Candy, by Mr. Gott.
Ethics and Principles in Modern Business
Dr. Robert E. Wilson, Chairman of Board, Standard Oil Company of Indiana, Chicago.
Adjournment.

Wednesday, June 4

Morning Session • *North Ballroom*

9:30 a.m.—Film on Plant Safety—"It's Up To You"

Session No. 1

10:00 a.m.—*Employment Relations.*
Presiding: Reed W. Robinson, Golden Nugget Sweets, San Francisco; Chairman, NCA Employer-Employee Relations Committee.

10:05 a.m.—*Trends in Wages.*
E. R. Bartley, Personnel Director, Bunte Brothers, Chicago.

10:25 a.m.—*Group Insurance.*
Richard B. Kimbell, Vice President, Kimbell Candy Company, Chicago, NCA Secretary-Treasurer.

10:35 a.m.—*Washington Situation.*
Moderator: Harry R. Chapman, Chairman of the Board, New England Confectionery Co., Cambridge; NCA Vice President—Chairman, NCA Washington Committee.
Relation of Department of Agriculture to Confectionery Industry.
George H. Goldsborough, Sugar Branch, Production and Marketing Administration, U. S. Department of Agriculture, Washington, D. C.
Office of Industry & Commerce, Earl L. Winger, Department of Commerce, Washington, D. C.
Legislative, Clarence R. Miles, Manager, Governmental Affairs, United States Chamber of Commerce, Washington, D. C.

Session No. 2

10:00 a.m.—*Ingredient Supplies.*
Presiding: Charles F. Scully, Williamson Candy Co., Chicago.
Sugar—Dr. Phillip E. Jones, Head, Research and Analysis Div., Sugar Branch, United States Department of Agriculture, Washington, D. C.
Cocoa Beans—T. J. Mahoney, J. Aron & Company, Inc., New York City, President, Cocoa Merchants Association of America, Inc., New York.
Peanuts—Theodore R. Sills, Theodore R. Sills & Co., Chicago, Illinois, representing the Peanut Users Council.
Corn Syrup.

11:55 a.m.—NCA Platform.
H. R. Chapman, Chairman, Resolutions Committee.

12:00 noon—Adjournment.

12:30 p.m.—Luncheon—Grand Ballroom.
Introduction of Honored Guests and Tribute to Suppliers to the Candy Industry, Philip P. Gott, President National Confectioners' Association The Meaning of 1952, Allan B. Kline, President American Farm Bureau Federation, Chicago
Tribute to a Candy Pioneer, George H. Williamson, presentation to be made by W. C. Dickmeyer, Wayne Candies, Inc., Fort Wayne, Indiana.
Adjournment.

Evening Session • *North Ballroom*

7:30 p.m.—Film.

8:00 p.m.—*Production Forum: Raw Materials, Packaging, Costs.*
New Developments in Starches and Corn Syrups, John Krno, Vice President, Corn Products Refining Company, New York.
Whipping Agents—Emulsifying Agents-Antioxidants, George Carlin, Swift & Company, Chicago.
Batch vs. Continuous Processing, Dr. Edwin T. Oakes, E. T. Oakes Corporation, New York.
Protective Packaging, Thomas T. Cook, Advertising Manager, Shellmar Corporation, Mount Vernon, Ohio.
Cost Reduction, Frank A. Buese, A. T. Kearney & Company, Chicago, Illinois.
Adjournment.

Thursday, June 5

9:30 a.m.—Film—North Ballroom.

10:00 a.m.—*Technological Developments.*
Presiding, John Henry, President, DeWitt P. Henry Company, Philadelphia, Penn. Chairman, NCA Research Committee.
Rancidity-Ingredients, Dr. L. F. Martin, Head Bureau of Agriculture and Industrial Chemistry, Agricultural Chemical Research Division, United States Department of Agriculture, New Orleans.
Developments of Ration Confections, H. B. Cosler, Quartermaster Food and Container Institute, Chicago.

10:30 a.m.—*At Your Service, Mr. Customer.*
Co-Chairman: Victor H. Gies, Vice President, Mars, Inc., Chicago.
Irvin C. Shaffer, Vice President, Just Born, Inc., Bethlehem, Pennsylvania.
Representatives of Panel:
Limited Price Variety Stores Association
National Association of Chain Drug Stores
National Association of Food Chains
National Association of Retail Druggists
National Association of Tobacco Distributors
National Automatic Merchandising Association (Wallace T. Collett, W. W. Ribbals Co., Cincinnati)
National Candy Wholesalers Association (Peter Cramer, Peter Cramer & Sons, Somerville, Mass.)
Theater Owners of America, Inc. (Harold J. Fitzgerald, Fox Wisconsin Amusement Corp., Milwaukee)

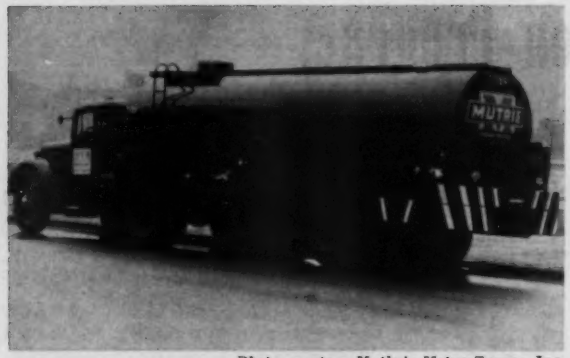


Photo courtesy Muthrie Motor Trans., Inc.

Tank equipped to transport bulk liquid chocolate.

Problems of Delivery

AN EDITORIAL STAFF REPORT

1. Plant Storage

The main problem is that of storage. This applies to both the chocolate refiner and to the candy manufacturer. The refiners are not equipped to store sufficient supplies of chocolate for delivery during the heavy fall buying season when the demand is at the peak. Likewise, the candy manufacturer can hardly store sufficient supplies of liquid chocolate for more than a few days requirements. Heavy inventories could not be built for peak periods of production. Candy companies whose demand for chocolate is reasonably constant throughout the year would benefit most from liquid handling. The major cost of installing a liquid chocolate system is that of the storage and receiving tanks.

2. Truck Construction

A minor problem concerns that of the tank truck. An ordinary milk truck with about four inches of cork insulation works very satisfactorily for short hauls. Last winter a refiner delivered loads of 24000 pounds of liquid chocolate in sub-zero weather, the trip requiring one and one-half hours. The chocolate was at 150 F. when loaded and had only lost two degrees when unloaded. Another refiner experimented with hauls of 300 miles and was forced to suspend operations during the winter because a heated tank truck was not available. Designs for water jacketed tank trucks are now being developed which should prove satisfactory for long hauls.

3. Handling of Various Types

A more serious problem arises in the means required for handling various kinds or types of coatings. If a candy customer can make exclusive use of one truck for one kind of chocolate, no problem results. The development of a "Standardized" chocolate suitable for every manufacturer would solve this puzzler but this is wishful thinking. For a low viscosity coating, perhaps 150 pounds will remain in the tank from a 24000 pound load after careful unloading. Obviously, this 150 pounds can not be steamed down a sewer. And, as the textures of coatings vary widely, even 50 pounds of a coarse chocolate would be harmful if allowed to mix with a load of fine chocolate. The mixing of different types of product must be avoided. Flavor and aroma identities as well as texture characteristics would be lost. A chocolate refiner may carry as many as 60 types of chocolate on hand and it is common for candy manufacturers to use eight or 10 different coatings. The number of coatings used is also reflected in the number of storage tanks required.

4. Unloading

A minor problem arises from unloading tank trucks during the winter months. To unload correctly, hose and pipe connections are required at any season. But during cold spells, a warm air supply to the top of the tank must be supplied. Otherwise, a hard film on the surface of the warm chocolate will form and also a heavy layer on the sides of the tank will accumulate.

5. Demand

As mentioned previously, the candy manufacturer maintaining reasonably uniform production stands to benefit from liquid chocolate handling. However, candy companies having high seasonal demand could have standby facilities for the use of moulded chocolate to supplement the deliveries of liquid chocolate. This might be considered somewhat similar to the user of liquid sugar who occasionally supplements his supply with granulated sugar.

6. Source of Supply

In the opinion of some candy manufacturers, a disadvantage of liquid chocolate is the dependence upon one source of supply and upon daily deliveries by the trucking company. As more refiners become able to make liquid chocolate deliveries, more freedom in the choice of supply with less dependence on one particular refiner, will result.

The chocolate refiner has less to gain through liquid chocolate distribution than the candy manufacturer. The primary savings in transportation and handling costs definitely benefit the user. Moulding and wrapping operations at the refineries are so highly mechanized that this cost is relatively very low. However, costs of breaking and remelting chocolate borne by the candy manufacturer is comparatively high. Pumping the liquid chocolate to holding tanks from which it may flow to tempering units, mixing tanks and coaters results in substantial savings in time and labor. An added advantage not to be overlooked is improved sanitation.

Apparently all of the large refiners supplying bulk chocolate to the confectionery industry are experimenting with deliveries of liquid chocolate. From the enthusiastic response so far displayed on the part of candy plants, there seems little doubt that this method of handling chocolate is here to stay. The development may be slowed until the problems cited previously are overcome.

Individual circumstances may exclude the handling of liquid chocolate temporarily. Plant or building lay-outs

CHOCOLATE

in some cases may not permit handling of liquid chocolate. The pumping of liquid chocolate five or six floors and the necessity of huge storage facilities on the upper floors in buildings not designed to support such weights impose engineering problems.

Liquid chocolate delivery is in its infancy. The future appears bright. Candy manufacturers will find that the handling of liquid chocolate offers economic and sanitary advantages over former methods. Universality may not be attained, users of small amounts of chocolate would be unable to accept a tank truck of liquid chocolate, nevertheless, the confectionery industry will benefit through this advance in raw material handling.

A large eastern candy company has been receiving liquid coating chocolate for a period of over two years. During this time, a full day's supply of coating was stored as a reserve against delivery failure. This emergency supply was used in order to keep the stored chocolate fresh in accordance with the dictum, "First in, first out," as no breakdown of deliveries occurred. This company would not consider returning to the older method of receiving moulded blocks of chocolate and the necessity of the remelting operation. Another reason for the enthusiastic reception accorded this method of chocolate handling is the saving effected which company officials estimate is over one cent per pound of coating.

The practice of trucking liquid chocolate cannot become widespread until several problems are solved. Some of these may not apply to every potential prospective candy firm. In general, six problems may be cited as: plant storage, truck construction, handling of various types of coating, unloading, demand and source of supply.

Road Transport

by J. KOCH

WE HAVE made inquiries as to progress in other countries in the design of tank wagons for direct delivery of liquid chocolate from manufacturer to user, with a view to making comparisons with our own achievements in this field.

While it does not appear that large scale transport of liquid chocolate has so far been practiced in Europe, on grounds of the size of the market rather than any technical considerations, the problem has received attention there and it may interest our readers to have the views of a European chocolate technician who has studied the problem at first hand and sent out liquid chocolate in unheated metal drums on test journeys of up to 48 hours.

He reports that surprisingly little difficulty was experienced with solidification and that, after comparing notes with Messrs, W. P. Butterfield Ltd., the well known British manufacturers of tank wagons for the food and chemical industries, he considers there should be no difficulty in building a moderate sized insulated tank wagon in which the chocolate would not drop in temperature by more than 2° to 3° per hour, however severe the weather conditions.

His experiences suggested that a greater danger than solidification would be separation of cocoa butter, leading to difficulties in emptying, and variations in quality if the wagon were to discharge parts of its load at different destinations.

Our suggestion shows a typical tank wagon built by Messrs. Butterfield for liquid sugar deliveries, and it was established that a similar type of tanker could be equipped with a slow driven stirrer which would both prevent separation and assist the emptying procedure. Such a stirrer need only be operated intermittently. Probably the simplest and cheapest arrangement would be to install an independent electric motor drive for the stirrer, to be supplied with power from the mains at the point of delivery, though a power take-off from the wagon drive could also be arranged.

To eliminate any anxiety which might be caused if delays were encountered, the tank itself should be equipped with either a water jacket and immersion heater or a low temperature electrical heater winding, to be plugged in to the local electricity supply mains whenever the wagon halts for any length of time. With independently driven stirrer gear and heaters, there need never be any worry even if a wagon were delayed indefinitely with a load of chocolate on board. It would also be available for temporary chocolate storage purposes when in its home garage, which would of course adjoin the manufacturer's conche room.

Suggested heater sizes vary from about 3 KW for a 3 ton wagon to 6 to 9 KW for a 10 ton wagon. At these sizes, one hour's 'charging' would store sufficient heat for three hours traveling under the worst conditions, and should a load solidify through some mishap en route, such as the wagon being snowed up on the open road, it could safely be remelted in 35 to 40 hours, using nothing but the vehicle's own equipment and an external electrical power supply.

For years, the confectionery industry has been dreaming of trucking liquid chocolate from the refiner direct to the candy plant. However, it has not been considered too feasible and actual tests were not conducted until recently on a scale sufficient to enable proper evaluation.

The Status of Liquid Chocolate

THE MANUFACTURING CONFECTIONER is glad to *present up-to-the-minute information on the present state of liquid chocolate. Although still in its infancy, the delivery of liquid chocolate is destined to increase. Liquid milk products and corn syrup have paved the way for liquid sugar which has definitely matured into a sizable adjunct of the sugar industry.*

Essentially, the shipping of chocolate in a liquid or fluid form should prove no more hazardous than the cross-continental shipment of fats and oils in tank cars on our railroads. The problems presented need not be considered unsolvable. The confectionery industry must march on!

Production Executives Meet

PMCA & Lehigh University Act as Hosts to Candy Producers for Sixth Time

ENTHUSIASM marked the Sixth Annual Production Conference of the Pennsylvania Manufacturing Confectioner's Association held at Lehigh University, Bethlehem, Pennsylvania, April 24-25. The papers presented were of the usual high quality expected which has made these conferences so note-worthy. Of the 200 individuals attending, about two-thirds were representatives of confectionery firms. Perhaps this conference surpassed the preceding five by virtue of more lively discussion.

Dr. H. A. Neville. Director of the Lehigh University Institute of Research, discussed "Research and Industry." Research was defined as 'the means by which new knowledge and new applications of knowledge are sought.' "Research has been called a gamble—a gamble of time and money against the possibility of some return having interest and material value," said Dr. Neville. "Research, is not, however, strictly a game of chance, because intelligence and skill are very important factors in its conduct. Applied science and technology must now advance by relying upon the results of scientific research for guidance. To solve the problems of tomorrow, information must be gathered today."

Antioxidants, chemicals of increasing importance in the food field, were subjects of two papers. These papers appear elsewhere in this issue. Mr. Whitmore stated that the Meat Inspection Division authorizes the use of NDGA, citric acid, propyl gallate and butyl hydroxyanisole, limiting the concentration of each. The incorporation of any of these chemicals should be clearly stated on the the ingredient label.

Mr. William J. Miles, Production Supervisor of Hilton-Davis Chemical Co., Division of Sterling Drug, Inc., preseented a paper on "Certified Food Colors for the Candy Industry." This was prepared in cooperation with R. N. Johnson, Chief Chemist, Cincinnati Mfg. Div. of The Kroger Company, and will be printed in a later issue of THE MANUFACTURIOG CONFECTIONER.

"Plant Designs and Layouts," was splendidly handled by Mr. Gilbert I. Ross, president, Ross & Co., Inc., New York City. A new plant must be designed not only to fit today's needs but must also meet tomorrow's requirements. A plant layout should precede plant design but this is seldom possible. Knowledge of processes, equipment, number of employees engaged in each activity, raw materials inventory, work-in-process and finished goods, means of transportation to and from the plant, the number of vehicles requiring accommodation, service and office requirements are needed prior to planning the layout, which may be made in three stages. Over simplified, this means the determination of: (1) the arrangement of equipment and working space in each department; (2) the floor area and ceiling heights required by each department; and (3) the most economical location of each department with respect to every other department. A good layout should eliminate unnecessary work and minimize physical effort. A poorly located machine may result in excess labor cost. A layout should provide full view of as much of the operation as possible as this aids in supervision. A common fault is to lay out too narrow aisles and place machines too close together. Another fault is the failure to provide enough storage space. Scale models or scale templates are a great time saver in developing layouts.

An effective way to determine the location relationship of departments consists in making a materials-handling study detailed sufficiently to show the amount of traffic flow from department to department. Departments having the heaviest traffic, one with the other, are placed as close together as practicable.

The structural part of a plant need be nothing more than shelter which must not interfere with operations. Certain departments on the Flow Diagram contain operations that must be conducted on a first floor level. Other departments may preferably belong on the same level, or on different floors. At present there is preference for single story industrial structures. This is because: (1) there is no lost floor space due to elevators, stair wells, etc.; (2) the construction of wide bays with a

minimum of obstructing columns permits a maximum of flexibility in shifting operations; (3) the question of developing floor areas that are a precise factor of the departmental areas does not arise; (4) the flow of material into the plant and to storage may be simplified and economical handling methods used; (5) excellent facilities for loading and unloading may be provided and mechanical handling equipment of the exact type required may be used; and (6) overhead is reduced through this type of construction.

Plant designs and layouts become obsolete very rapidly. Hence the efficiency of any particular plant must be periodically reassessed, if the plant is to be kept abreast of progress in technology. Efficient layouts and suitable buildings are pre-requisites to modern, low-cost production.

Mr. Joseph R. Ryan, The Atlantic Refining Company, Philadelphia, presented "Work Simplification—Everybody's Job" in such an interesting manner that candy workers are sure to benefit as well as management. This talk may be found on another page.

Mr. Victor P. Victor, well-known consulting engineer to the confectionery field gave a very interesting talk on refrigeration and air conditioning processess as applicable to the confectionery field. He described the seven major methods of temperature and humidity control and by means of a unique and original chart indicated the optimum process or processes to be used for any given set of operating condition.

Perhaps, the high-light of the Conference was focused around the Symposium on Chocolate. Mr. L. Russell Cook, Ambrosia Chocolate gave "A Briefing on Chocolate Manufacture. "Chocolate Temper and Its Evaluation," a joint paper by Messrs. Meyers and Graham, Hershey Chocolate Corp., was given by Mr. Meyers. Mr. W. Tresper Clarke, Rockwood & Co., presented "The Effects of Fine Grinding." Mr. R. C. Welch, Wilbur-Suchard Chocolate Co., presented "Milk and Milk Chocolate." The Conference enjoyed tasting samples of solid chocolate prepared by Mr. Cook and candies coated by Mr. Lou Segal of Philadelphia. Mr. Clarke also favored the Conference by distributing three chocolate samples. These papers appear elsewhere in this issue.

The Pennsylvania Dutch Dinner, always one of the most pleasant features of the Lehigh Conference, was again voted the "best liked" part of the program. The highlight of the dinner was the presentation of an award by Lehigh University through President Dr. Martin D. Whittaker to Mr. C. Rudolph Kroekel, chairman, PMCA Research Committee.

Mr. Philip P. Gott, president, National Confectioners' Association, was the guest speaker at the dinner. Mr. Gott spoke on the timely subject, "Is Research Headed Towards Nationalization." Ingenuity and initiative were responsible for the development of the confectionery industry and the general acceptance of candy as a low-cost food. The trend towards more governmental controls has threatened research. Basic scientific research should remain unfettered and any attempt to have central control will merely quench the spark of originality which flourishes in a free environment. Private industry can carry on its own research.

Mr. Gott further stated, "The power to tax is the power to destroy. Research is important to the progress of our economy. The easy route of asking Uncle Sam to do it for us only leads to more socialism. Socialization or nationalization develops out of the attitudes and acts of men and government. Like a spreading cancer, it destroys freedom if not treated in the early stages."

Natural sugar was the chief topic of the discussion so ably presented by Mr. Louis Lang, National Sugar Refining Co. Mr. Lang is well qualified to discuss this important product, and handled the subject in his usual capable fashion in his talk, "Sugar—Its Uses and Abuses in the Candy Plant." Elsewhere in this issue will be found the talk reprinted in its entirety.

"Tarpaulin and Spot Fumigation in the Candy Industry," as presented by J. L. Maxwell, Manager Fumigant Sales Division, Dow Chemical Company, will appear in an early issue of M. C.

With C. R. Kroekel acting as moderator, a highly informative and interesting discussion of sweeteners was presented with Mr. Lang and Dr. Newton participating, along with Edward W. Meeker, American Sugar Refining Company, and John Kooreman, Penick & Ford Ltd., Inc.

The final session at the Lehigh Conference involved a round table discussion, directed by James A. King, and generously contributed to by those in attendance. Adjournment on Friday afternoon came too soon for many attending the Conference. All were unanimous in declaring this to be one of the most successful to date, and many were already planning for next year's meeting.

Lehigh Honors Kroekel

Dr. Martin D. Whittaker, President, Lehigh University, presented an inscribed plaque to Carl Rudolph Kroekel, Kroekel-Oetinger, Inc., Philadelphia, during the recent Annual Production Conference of PMCA in Bethlehem.

Mr. Kroekel

"In recognition of his inspiration and guidance of the research activities of the Pennsylvania Manufacturing Confectioners' Association, of his valuable contributions to the research program conducted at Lehigh University for this organization, and of his acknowledged leadership in the confectionery industry."

The presentation was made to Mr. Kroekel, well-known for many contributions to the confectionery field, in behalf of the Institute of Research, Lehigh University, Bethlehem, Pennsylvania.

Mr. Kroekel has for some time been associated with PMCA as Chairman of the Research Committee.

A Briefing on Chocolate Manufacture

L. RUSSELL COOK
Technical Director, Ambrosia Chocolate Co.

Bean Cleaning

THE first step in the actual manufacture of any chocolate product is the cleaning of the beans. This is important not only because of the obvious sanitary advantages, but also because of the adverse effect of any extraneous materials on the flavor and color of the finished chocolate product. An added reason for thoroughly cleaning the beans is the proper care of the equipment through which the beans must flow after roasting. It is obvious that any stones, coins or other objects of metal cannot help but be damaging to the grinding, mixing and pumping equipment through which the material must pass on its way through the plant.

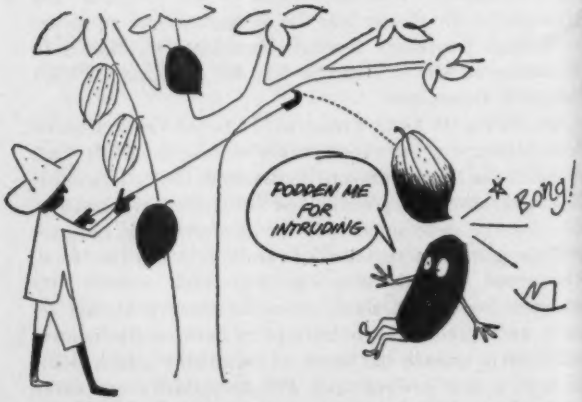
The particular methods of cleaning beans may be somewhat varied from one manufacturing plant to another, but the principal force used in all of them is that of gravity. Differences in specific gravity between dust, shell, pieces of string, and similar materials on one hand, and cocoa beans on the other, allow the initial separation to take place, usually by means of a counter flowing air current that conveys the lighter material to a cyclone collector. This may well be concomitant with or followed by a sifting which is merely a matter of passing the beans over a vibrating screen, which further removes entrapped dust. At some point during the cleaning process magnets are introduced in series to extract any metals that are subject to magnetic force. Stones and nonmagnetic metal are eliminated from the stream either by conveying the beans in a current of air in which stones and metal will not travel, or by passing the stream down an inclined vibrating screen which likewise sends the beans in one direction and heavy foreign material in another.

Roasting

The roasting process is one that has very obvious purposes, into the details of which we will not delve at the present time. The various types of roasters used are rather many and include both continuous air roasting and batch roasting, which customarily employs the application of direct heat. Either method may be used to roast beans slowly at a relatively lower temperature, or rapidly at more elevated temperatures. Each type of roasting equipment and each method of applying the roasting procedure has its advantages and disadvantages. Again these subjects have been covered in previous conferences, but I do want to emphasize that no particular type of roaster nor any one method of using the roaster is or can be the only right method. Different methods and different equipment are applied depending upon the end result desired and upon the quality and type of bean used. Some types of basic beans are customarily given a rather full or high roast, whereas the more aromatic flavor grade beans are roasted to lesser degrees, thereby developing but not destroying the delicate aromas which characterize these types of beans. Then, too, the particular type of roasting applied will depend to a great extent upon such other factors as the age of the beans,

CHOCOLATE JOURNEY-

1. Chocolate and cocoa are made from the cacao bean which grows in pods on trees in equatorial regions. Bahia is principal shipping port in Brazil.



2. Cacao beans grow inside pods on trees 12 ft. tall. Workman uses long pole with sharp blade to cut pods off branches.

the manner in which they may have been stored, and the varying skills (or lack of them) that were applied in the tropics where the beans were raised and prepared for shipment to this country.

After the beans have been roasted they are at least partially cooled by one means or another. The mechanical means by which this cooling is accomplished is unimportant, but the fact that the beans are cooled is of considerable aid in the process which immediately follows that of roasting.

Cracking

The cooled roasted beans are then fed into equipment known as a "Cracker and Fanner", or a "Winnower". The primary purpose of this machine is simply that of breaking the beans and removing their shells. The actual control and operation of the machine, however, is far more complicated. The beans are first broken with the production of a minimum amount of dust, either by percussion or attrition or both. Here again there are different types of winnowers in use in the industry which employ different mechanical methods but accomplish the same results. The broken beans are next segregated as to particle size by an inclined rotating perforated screen cylinder. Controlled air streams then blow the shell away from the pieces of kernel, and the nibs emerge clean and ready for grinding.

Many times manufacturing confectioners who purchase and use chocolate coating spend an undue amount of time worrying about the possibility of excessive quantities of shell getting into chocolate liquor and chocolate coatings. Really, you don't have to worry much about this if for no other reason than that it is to the chocolate manufacturer's selfish interest to as completely as possible eliminate all of the shells. The presence of even a small amount of shell very definitely and adversely affects the flavor and color of the finished chocolate product, which is, of course, one very definite thing that the chocolate manufacturer wishes to avoid. Additionally, the upkeep of the chocolate manufacturing equipment is an expensive matter even if the initial cost of the equipment is to be ignored. The presence of shell in cocoa nibs makes the resulting chocolate liquor exceedingly difficult to grind and increases markedly the rate of wear and the upkeep cost on all of the grinding surfaces. This is likewise true if the germ of the cocoa bean is allowed to remain in the finished nibs, although the adverse results due to the presence of the germ are far less serious.

Since the degree and method of roasting have been determined in part by the condition and type of cocoa beans being used, it is obvious that the varying species called for by any given formula will not be blended together prior to the production of the cocoa nibs. The blending of these different types of beans will take place either in the nib form or after the nibs have been individually ground into liquor.

So far in this processing of the cocoa beans no mention has been made of any attempt to alter the color and flavor from their naturally occurring forms. At this point it is appropriate to mention that alkali processing, or dutching, is applied either to the nibs or the liquor, depending not so much upon the convenience of the manufacturer as upon the particular type of color and flavor that he is seeking.

The effect of applying the alkalizing or dutching process to Chocolate Liquor or to nibs has been outlined in considerable detail in one of our previous conferences, for which reason it would seem sufficient to remind you at this time merely that alkali processing of nibs or liquor results in a considerable darkening of color; an increase in the pH, which is a factor of the amount of alkali used and the original acidity of the beans; and that the flavor of the resulting chocolate product is quite different from that made with natural process or unalkalized liquor. It has sometimes been said that alkalizing intensifies or increases the flavor strength of the chocolate. This is not a all true. The flavor is markedly altered, but insofar as flavor strength is concerned alkalizing causes a diminution rather than an increase of the flavor intensity. Probably this fallacy arises from

Beanie continues his journey on page 30

from Bean to Bar

3. Another workman opens pods, exposing cluster of beans to sun. Region is hot and dry. Beans ferment for 3 days, improving flavor; are then pulled apart and spread out to dry.

4. In burlap bags, beans go by trucks from plantation to shipside at Bahia.

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the fact that many people "eat with their eyes" and assume that merely because the product has a darker color, it is likewise stronger in flavor.

Mention should also be made at this point of the fact that the alkalizing process does result in an increase in the percentage of water solubles in the finished chocolate liquor or cocoa powder. It is just as important, however, to realize that this increase in the percentage of water solubles is not great, and that the resulting liquor or cocoa powder is definitely not soluble in the strict sense of the word.

Liquor Grinding

The cacao nibs are now transformed into chocolate liquor. These nibs, although they are dry and crisp, actually contain an average of 53% cocoa butter. As they pass through fore-grinders, triple stone mills, and steel refiners the cellular structure is progressively destroyed and reduced to extremely fine particle size. In this process the cocoa butter is released and becomes the medium in which all of the finely ground dry material floats.

The controls of this operation are few, but are of considerable importance. While heat is desirable for further elimination of moisture and other disturbing volatiles, excessive heat is scrupulously avoided to maintain flavor uniformity and to escape the obvious effects of secondary roasting.

Likewise, precise particle size is carefully watched. Fine grinding for cocoas and for coarser coatings assures the release and availability of the maximum amount of cocoa butter. Relatively coarse grinding is preferred for liquors that are intended for smooth coatings where further intensive milling in the presence of sugar, milk and other ingredients is conducive to improved flavor and texture.

The large storage tanks in which chocolate manufacturers keep their chocolate liquor lead to three distinctly different outlets. One is to the tempering and molding departments where straight chocolate liquor is prepared in final form for shipping.

The second outlet is to the cocoa powder departments. Here the chocolate liquor is heated to 210-220 degrees F, and pumped to large hydraulic presses, where a predetermined amount of cocoa butter is removed through heavy metal screens of extremely fine mesh. The cocoa butter is then filtered and passed to cocoa butter storage tanks for later molding and direct sale, or for use in the manufacture of chocolate products. The cocoa cake remaining in the presses may contain anywhere from 10% upwards of cocoa butter, depending upon the particular type of powder desired. This cake is cooled, fed to pulverizers, and then sifted either by means of fine mesh silk screens, or, more usually, by air sifters which separate the particles fine enough for ultimate commercial use from the "tailings", which are coarse particles that are then returned for further pulverizing.

Mixing and Refining

The third outlet from the liquor storage tanks will lead to large mixing vats where the chocolate liquor is combined with the other ingredients that are to enter into whatever finished chocolate product is being made. Chocolate liquor, sugar, cocoa butter, milk in one form or another, and various flavoring materials form the usual components of the original mix. Once the proper formulation has been determined, the mixing operation is really a very simple one. It is here, however, that the accuracy of the formulation is determined and hence where a great deal of the uniformity of the finished product is controlled. Aside from the obvious methods of control that must be applied to this mixing operation, it is interesting to note that the batch must be brought to the proper plasticity for refining. This is done not only by careful observation of the correct formula, but also by carefully controlling both the batch temperature and the amount of total agitation given to the batch before it is discharged. The proper plasticity must be arrived at in the mixing operation if refining is to take place in any specifically planned manner.

Types or methods of refining can be roughly divided into two categories: "wet" refining and "dry" refining. Both types are practiced on the same types of refining machines which customarily consist of large steel cylinders arranged in a more or less vertical pattern; the cylinders arranged, of course, on horizontal axis. The first two rolls at the bottom of the machine, known as the feed rolls, are usually placed at a more inclined angle than the succeeding vertical rolls. It is interesting to compare the speeds of the different rolls on a refiner. The first feed roll at the bottom travels at a very much

5. After 12 days headed due north, ship reaches Boston, Mass. Bags are unloaded on to trucks.

6. Trucks arrive at receiving station of chocolate factory, where bags are opened and beans drawn by suction into silo-shaped storage bins.

slower speed than the top roll from which the refined chocolate is finally scraped. Each cylinder as you progress from the feed to the discharge end of the refiner revolves at a greater speed than the preceding one. Thus you have not only pressure, but shearing action performing the actual reduction of the particle size.

After the refining operation has been completed, we come to what I shall call for purposes of this discussion the "finishing"; which general term is used because there are any number of processes through which the chocolate can now be put to develop characteristics that cannot be introduced by ingredients, and which can be almost endlessly varied. The chocolate could very well at this stage merely be standardized as to viscosity by the addition of cocoa butter and possibly lecithin. It might be merely stirred for short or long periods of time in large kettles, either aerated or not. It might be aged in plastic form either warm or cold, or it might be subjected to one of the many methods of conching. Conching itself can be used to produce chocolate coatings of widely different characteristics, and it is here that we come to the point on which I would like to place particular emphasis.

While an understanding of what conched chocolate is has become rather wide spread, I don't believe that there is any question which I hear more frequently than: "What is fondant chocolate?" It is not difficult to a questioner how fondant chocolate may be made, but to describe it in words so that one could identify fondant chocolate is rather impossible.

Fondant Process

After the "fondant" coating had passed through the standard mixing and refining operations, it was placed in a conche and held there at 185° F. Here again the number of hours required to produce this type of flavor at this particular temperature will vary with the type of equipment used. This is probably as good a point as any to list the variable factors which control the development of a conched or fondant flavor. The factors are four in number and are: agitation, aeration, temperature and time. Their effects are as follows:

Control Variables

1. While a certain minimum amount of agitation is required to produce a conched or fondant coating at all, violence of agitation beyond this minimum point controls principally the amount of time required to accomplish the end result, and the extent to which forced aeration is needed.

2. The degree of aeration given a coating proceeding through the conching operation affects greatly not only the time in which the process can be completed, but also the precise type of flavor developed. The aeration applied might be purely through a rapid turnover of the exposed surface, or it might be the result of air forcefully pumped through or over the moving mass. The temperature an dhumidity of the air will likewise definitely affect the ultimate result.

3. The temperature is a very obviously vital factor in determining the type of flavor that will result from conching and must be accurately controlled if uniformly consistent results are to be obtained. A difference in flavor can be noted as a result of as little as 5° variation in the temperature maintained during the conching operation. In the instance of these samples that you have, however, I have used a spread of 55° F (130° F in one case and 185° F in the other case) merely to create a sufficiently wide spread in the resulting flavor that it will not be difficult for the least experienced of you to perceive.

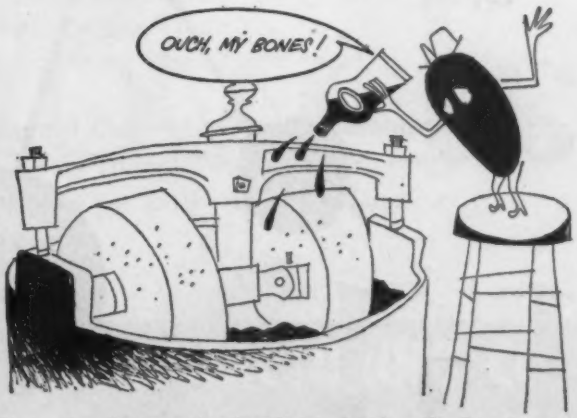
4. Time as a factor in conching is just as important as it is in baking a cake or roasting a duck; and for the same obvious reasons. In fast action conches, time control is naturally more critical than in slower machines. In both it is not a rigid matter, but one that must be determined by the chocolate expert batch by batch, as he carefully keeps watch over the chocolate flavor development and stops the process at the height of its development.

Obviously, with all of these factors being variable controls of the final flavor of the coating, the number that can be produced from similar or even identical formulas is unlimited.

The particular difference between ordinarily conched and fondant coating is one which results primarily from the variable of temperature. Obviously both of these coatings are conched coatings, but the one which was conched at an elevated temperature yielded a fondant, whereas

Now see page 34 for more adventures

7. Endless conveyor belts carry beans to cleaning room; then they are roasted in ovens.



8. Crushers reduce beans to hot liquid; sugar and vanilla flavoring are added to make candy chocolate bars. (Cocoa and cooking chocolate are also made.)

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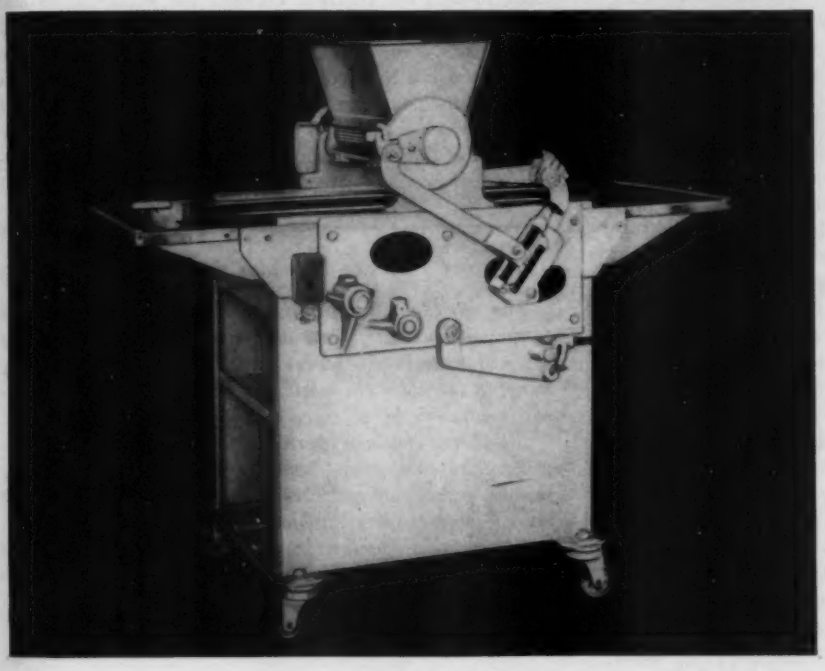

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the one conched at the lower temperature of 130° F. is not a fondant. I should re-emphasize, however, that the production of the fondant did not depend entirely upon the conching temperature, but that the type of roast applied to the beans that entered into this formula was at least equally important.

Without making any attempt whatsoever to detail the academic technicalities which cause the difference in flavor between the conched and fondant samples, or which might at least theoretically explain the results, I would like to give you a more or less practical explanation for the reasons behind this flavor change.

Remember that, in making the fondant coating, the beans were not really roasted, but were merely roasted or heated sufficiently to remove the shell easily from the bean. In effect, then, we have an almost raw bean being ground into liquor and combined with the other ingredients at temperatures which will not foster any actual roasting. When the mixed and refined chocolate gets to the conching stage the temperature is then elevated to a point at which a virtual roasting of the mass can take place. Thus we have unroasted chocolate liquor going through chemical changes in the conche in the presence of sugar, milk and other materials that may be present,—chemical changes that normally occur in the roaster. It is only natural to expect, as these complex chemical changes take place in the roasting of the cocoa matter itself, that sugar, milk and even flavoring materials will enter into and alter the ultimate condition and identity of the ingredients which give flavor to the final product.

While the actual chemical changes that take place are myriad in number, there is one very definite change that takes place, which I feel is particularly characteristic of fondant coatings and which may have more to do with the typical fondant flavor than any other single change.

You are all familiar with the fact that cocoa beans contain a fairly large amount of natural proteins. You are also familiar with the fact that any protein is composed of at least several of the many types of amino acids. In fact, the protein might be looked upon as a brick wall composed of a number of the various types of amino acids piled one on top of the other. When these amino acids, which make up the proteins, are heated in the presence of moisture and sugar (whether it be the sugar of cane, corn or milk) substances form which are known as amino sugars. These amino sugars frequently have pleasant nut-like flavors, the exact taste of which will depend upon the types of proteins that enter into the reaction.

It is here that you can see the importance of the extremely low roast through which the beans are passed when a fondant coating is desired. Had the beans been given a regular or full roast, the proteins in the beans would have been at least partially de-natured and hardened so that the reaction between the amino acids and the sugars could not have taken place to any marked extent. It is true that a very desirable coating can be made by using fully roasted beans and applying the high temperature conching, but it would not be the type of flavor which is known as "fondant". This is just another example of the endless ways by which chocolate manufacturers can produce new and different flavors.

Chocolate Samples for Tasting

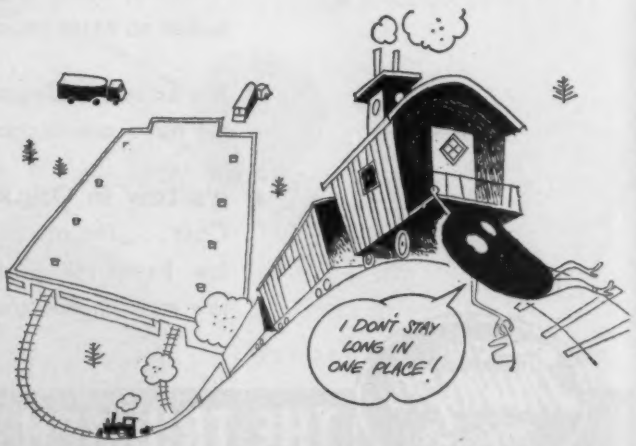
The samples distributed by Mr. Cook were in two forms: as solid chocolate and as a coating over various types of centers. Differences in flavor can be more readily noted in the solid chocolate and the effect of these different flavors can be observed on the finished dipped candy.

All three coatings were made using the same formula. The first paired samples were "unconched," the second paired samples were "conched," and the last paired samples were "fondant."

Tasting these samples in the above order, differences in flavor caused by the three different methods of production were easily noted and will be remembered.

Beanie comes home on page 37.

9. Hot liquid chocolate is poured into moulds. When cool, bars are removed, wrapped by machine and boxed.



10. By train and truck, cartons of chocolate bars leave factory for Distribution Center. Here they are held with other food products—sugar, breakfast foods, canned goods, etc.—for mixed shipments to wholesale grocers.

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CHOCOLATE SYMPOSIUM: Temper and its Evaluation

E. W. MEYERS and ARTHUR S. GRAHAM
Hershey Chocolate Corp.

BY means of Industrial Research we seek to find not only the application of scientific principles, but also ways and means to measure and express facts commonly associated with the arts. Since Dr. Easton and his associates at Lehigh initiated the study of cooling curves for the evaluation of their samples of modified chocolate, I wish to state that my remarks are not meant to ape or exploit their prior work on the use of cooling curves to determine temper, but rather to show you how we have modified their method to make it applicable to the study of some of our problems.

Temper testing by cooling curves has been described and discussed by Jensen, Whymper, and others, but apparently the results of their research were used mostly to define and explain temper rather than to control it. Whymper's studies, as he describes them, laid the foundation for the so-called newer methods of tempering chocolate.

These investigators have discussed such terms as stable and unstable crystals, good temper, poor temper, under temper, and over temper; but these qualities only define a condition. We need to know more than the limits of temper as indicated by shelf-life studies. We need a more concrete indication of how to measure temper. In our laboratory, we have developed cooling curve method to appraise several types of commercial tempering equipment and also to determine when several different kinds of modified chocolate were in temper.

Probably the most important process that a candy maker performs on chocolate is that of solidification. We use this word in the broad sense to describe the series of steps necessary to convert chocolate from its molten condition to its final solid form in which the consumer receives it. In order to have a desirably long shelf-life, the details of this solidification process must be carefully carried out. One of the most important factors is to cool the chocolate so that a large enough percentage of cocoa butter (higher melting fraction) has crystallized out in a stable form so that the latent heat of the remaining fractions crystallizing will not remelt and destroy the crystals already formed.

This crystallization of cocoa butter takes place when the chocolate is cooled below 91° F. and the process is known as tempering. It is important both for scientific study and plant control to be able to determine the degree or state of temper which is practically synonymous with the amount of crystallization which has taken place.

As previously stated, the cooling curve method has been applied by others and has recently been improved by the Lehigh Group. For our own purpose we have developed a modification of this method which is described in the following manner.

Equipment and Method

The equipment consists of an outside jacket containing the reaction chamber and inner cooling vessel in which is placed the tube containing the chocolate. The outside jacket is a large can lined with 2 inches of glass wool on the bottom and side walls. Embedded or nested in the glass wool is another can about the size of a No. 10 tin in which is placed the coolant, dry ice and acetone. The actual cooling chamber is a bottle 3 inches in diameter. It also serves as a receptacle for the sample tube containing the chocolate. It is inserted in a bath of dry ice and acetone and is weighted down with a piece

11. Truck carrying mixed cargo of chocolate bars and groceries arrives at wholesaler. From here, other trucks deliver to retail grocery stores, candy stores, drug stores, etc.

12. If housewife buys chocolate bar in self-service market, chocolate bar gets two more rides: one in the self-service carriage, the other in car to home.

THE MANUFACTURING CONFECTIONER gratefully acknowledges the assistance and cooperation of Scholastic Magazines and Walter Baker Chocolate and Cocoa Division of General Foods Corporation in providing the plates for the "Chocolate Journey."

of lead or some mercury placed in the bottom. The removable and innermost part is the glass sample tube which is about 1¼ inches in diameter and 6½ inches long. It is suspended in the cold air vessel to a depth of nearly five inches by passing it through a hole in a piece board to which is attached a ring of 2-inch cork. This assembly serves to cover and insulate the inner container and also to position the sample tube at a definite height.

To determine the cooling curve of chocolate, a 50-gram sample is placed in the tube and filled to a previously determined and marked point. A cork stopper carrying a thermometer calibrated in 0.2 C. is quickly inserted in the tube and the whole assembly placed in a container filled loosely with cotton until the thermometer reading becomes steady. The assembly or tube containing the sample is then inserted through the hole in the cover into the refrigerated air chamber. When the thermometer reading starts to drop the temperature is recorded. Every half-minute thereafter readings are taken until the temperature has dropped to about 15° C.

A cooling curve can be constructed by plotting temperature against time in the conventional manner. Actually, however, we are more interested in the data which can be measured mathematically and give us the index to two factors:

First Factor

This is the "Cooling Rate" expressed as the temperature change in degrees Fahrenheit per minute. A rapid initial cooling rate indicates a small percentage of crystal nuclei present. A larger percentage of crystal nuclei would promote a greater and more active crystallization with a resulting gradual liberation of latent heat and hence less rapid cooling.

Second Factor

This is the point of "Active Crystallization" and is the temperature at which the chocolate first shows a marked change in its "Cooling Rate". "Active Crystallization" at a low temperature is synonymous with super cooling and is due to the formation of a low percentage of crystals. In other words, the chocolate sets up in somewhat of an amorphous state similar to the cooling of glass. It is thus evident that a rapid "Cooling Rate" and "Active Crystallization" at a low temperature indicates a low degree of temper and that a slow "Cooling Rate" and "Active Crystallization" at a higher temperature indicates a greater degree of temper.

We have described a method by which the degree of temper of chocolate can be determined with ease and accuracy. It is a very inexpensive device which anyone can use to solve some interesting problems involving temper. The equipment is similar to that used in conventional cooling curve methods but differs in three important respects:

1. Two factors are measured, "Cooling Rate" and "Temperature of Active Crystallization" and the results obtained can be expressed mathematically which is always desirable in scientific work.
2. Since the results are expressed mathematically, every precaution has been taken so that the results may be duplicated.
3. Once the critical values have been determined for a given type of properly tempered chocolate, it then becomes a simple matter to determine if subsequent batches of this chocolate is in temper. It is not necessary to run a series of cooling curve tests—one will suffice.

Recently we prepared some special samples for the Lehigh studies and we used this procedure to determine if the modified chocolate containing G-2034 had to be tempered differently than regular chocolate. Since the only means of evaluating the effectiveness of G-2034 in the retardation of fat bloom is by shelf-life studies, it was imperative that both the control and special sample were enrobed with chocolate of the best and nearly same degree of temper.

Because our time is limited, we are unable to go into the details of the tempering of these two types of coatings used in our tests on an 8-inch enrober. Cooling curve tests on well tempered unmodified chocolate at an enrobing temperature of 90° F. showed a "Cooling Rate" of 2.8° F. and a "Temperature of Active Crystallization" of 79.6° F. Centers coated with this chocolate had a very good gloss. The chocolate had been cooled to 87.3° F. and then warmed up to 90° F. in the enrober.

In connection with modified chocolate, two separate tests were made on two different dates. For the first test, the chocolate was tempered in the cooling kettle and quickly transfered to the enrober where the temperature of the chocolate was raised to 88° F. in order to reduce the thickly seeded chocolate to an enrobing viscosity, while in the second test, two parts of the thickly seeded tempered chocolate was combined with one part of untempered chocolate held at 94°F. This mixture was then placed in the enrober and used at the resulting temperature of 91° F. without destroying its temper.

A comparison is given below of the condition of the chocolate in the enrober for these two tests and also the condition of the unmodified chocolate in the first test:

Modified Chocolate

Test	Temperature	Rate of Cooling	Temperature of "Active Crystallization"
1	88° F.	2.16° F./min.	79.7° F.
2	91	3.15	79.3

Unmodified Chocolate

Test	Temperature	Rate of Cooling	Temperature of "Active Crystallization"
	90° F.	2.80° F./min.	79.6° F.

The "Rate of Cooling" depends somewhat upon the temperature of the chocolate and hence when the chocolate at two different temperatures is being compared, it is felt that the temperature of "Active Crystallization" is probably a better criterion of the degree of temper. However, you will note that the temperature of the chocolate in one of the tests was within practical limits and while the "Rate of Cooling" was variable, the temperature of "Active Crystallization" is very close in all tests and becomes a very significant factor. This is another indication that once the relationship is established for a given type of coating, a single curve will indicate the degree of temper and thus a series of curves is not necessary.

In making the above test runs we discovered quite by accident that on one occasion, while the group went out to lunch, the temper of the chocolate did not change during the 1½ hour period during which time it was recirculated in the enrober at 91° F. This leads us to believe that there exists an equilibrium temperature for

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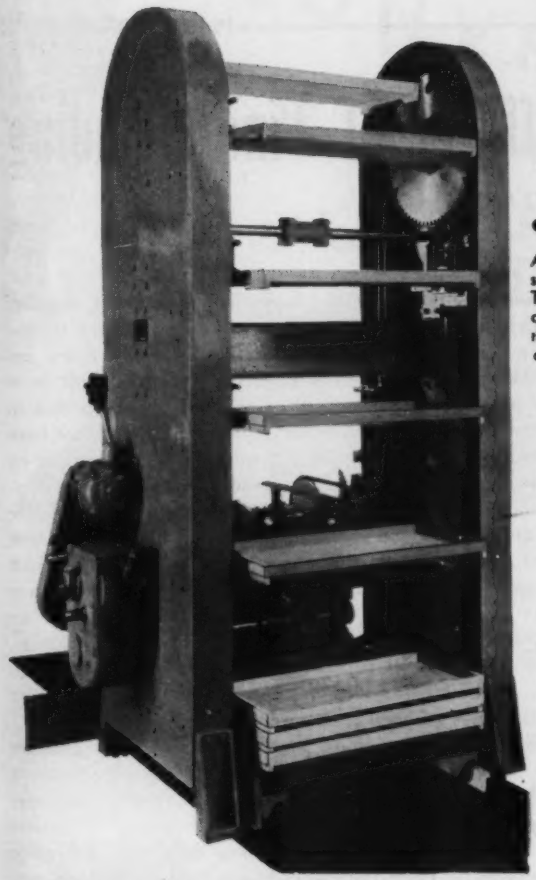

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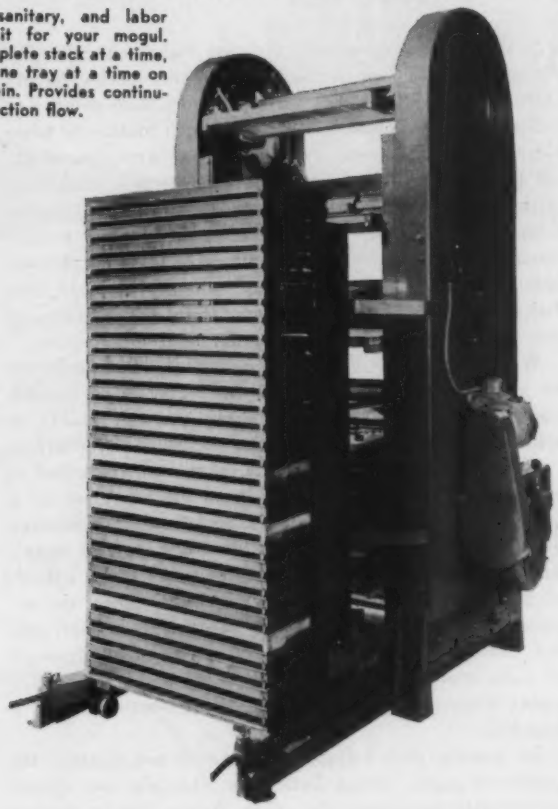

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tempered chocolate at which point it would neither gain nor lose temper. Scientifically, this is very interesting and knowledge of such equilibrium temperature would have wide application.

In a second application of our technique we will show you a series of curves illustrating how a single cooling curve with the determination of the "Rate of Cooling" and the temperature of "Active Crystallization" can be used to determine the degree of temper of a sample of chocolate and the efficiency of any tempering equipment. Explanation of curves will be given at Conference.

As the results of our studies, we have established for our products and processing, two definite factors which immediately tell us the degree of temper of our chocolate at the time of testing. This study has also revealed to us other aspects and phases in connection with the tempering of chocolate and with temper testing which we plan to investigate. It is quite likely that the handling of chocolate in the enrober, on the enrober belt, and in the cooling tunnel has some bearing on the temper of the finished goods. Therefore, it is not altogether impossible that some correlation exists between these several factors and that they can be expressed mathematically.

We hope that this report will induce others to conduct similar studies and that their contributions will help us to resolve this art to a measurable science.

CHOCOLATE SYMPOSIUM: Effects of Fine Grinding

W. TRESPER CLARKE
Chief Chemist, Rockwood & Co.

IN the sheer enjoyment of eating sweet chocolate its fineness influences our sense of quality perhaps more than the actual flavor but certainly more than color. Try eating a piece of chocolate in a darkened theatre or when recovering from a cold. About all one experiences under those limited conditions would be its real qualitative characteristics of smoothness and textural qualities established by the conditions of temper. Without further qualification probably we will all agree that the pleasurable results of eating a piece of smooth chocolate may frequently counterbalance some slight objections we may have regarding its flavor, color, and composition.

We all know that flavor and color are greatly affected by particle size. We recognize the influence of particle size on the viscosity of the coating and our ability to achieve varying degrees of gloss control and coverage.

No doubt many of you are familiar with the effect of crushing a piece of blue, green or brown glass to a powder. The resulting color change is one of lightening the shade. Clear white glass, like rock crystal sugar, when crushed to a powdery mass becomes much lighter, in fact becomes rather intensely white. These are apparent changes which, because of the new, finer particle size and the reflection, diffraction and refraction of light reaching our eyes, create an impression of a pastel shade, one in which a good amount of white is blended.

By wetting with a liquid which does not dissolve the powdered sugar, cocoa butter for example, we appear to intensify or darken the color. Again this is another optical trick. We see the pigmented particles through transparent films which exert their own coloring effect. In the case of cocoa butter and sugar the over all effect is one of a white paste tinged slightly yellow. Fondant makers may see a parallel in all of this for the situation of fine crystalline sucrose surrounded by tinted syrup is very similar. A more finely ground white paste has more lightening up properties than a coarse paste. Even a finely ground chocolate liquor has a lighter color than a coarse liquor. Several corollaries are obvious, some of which have practical uses.

In considering chocolate color let us review a few important facts. All the color we have to start with is in the nib itself. Unground, the only part we see is that in the surface of the nib. After grinding or slicing we have made more of this pigment available to be observed by our eye. Finer grinding releases even more pigment. Grinding with sugar and milk solids will conceal some of the pigment and dilute its effect. We discern only that part of the pigment and the effect of its dilution which is very near the surface. The thickness of this layer may be only 2 to 4 times the particle size. So, since we are dealing with particles of the order of 2 to 30 microns, that layer is itself very thin. Other factors are the thinness of the fat film and the thickness of the cocoa matter after it has reached transparency.

What is happening to the flavor while these changes are taking place? The fine grinding breaks the pigment and flavor bearing cells, setting them free to do more work or to do a better job. In the case of chocolate liquor grinding these components may thus be made available for other normal processes such as heating, aerating, conching, alkali-and water-treating, etc., to soften, intensify or otherwise modify the flavor and color. The fat of the cocoa nib is likewise set free to act as the dispersing medium. This is important.

Although we are not particularly fussy about seeing all the color, we would like to have all the flavor readily available for sensory enjoyment when we eat the chocolate or use it for other food products. This is where we want "fineness" to mean not just particle size but original bean quality as well. The basic qualities of each type of bean have their place in our scheme of chocolate technology. We use the finer Arribas, Venezuelans, and other delicate flavor beans where fine grinding is specifically practiced. In coatings designed for use with the more strongly flavored confectionery centers where usually the minimum quantity of sweet chocolate must

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do its utmost to provide flavor and act as a couverture, the beans are the recognized basic types such as West African, West Indian, and Brazilian.

The most commonly recognized factor of fine grinding of sweet chocolate is the viscosity increase with every further subdivision of the solid particle. If original viscosity is to be maintained more cocoa butter must be added. Attendant with the finer grinding is the need to redisperse the new solids in the cocoa butter. Proper dispersion includes spreading a uniform film of fat over all the surfaces, old as well as new in order to lubricate them. In this connection we must recall that viscosity of chocolate is an index of its internal resistance to motion, such as stirring, pouring, flowing, and spreading. Unless, the frictional resistance of each solid particle to the motion of sliding over and around its neighbors is reduced to the lowest value for the specific amount of lubrication present in the system, that lubricant is not being used at its greatest efficiency.

Now let us translate this to practical chocolate terms. If we do not make best use of the percentage of the fats that are present to achieve stabilization of viscosity by uniform dispersion we are not getting the lowest operating viscosity for that particular fat content. When expressed that way this situation means something to the chocolate user. Every time we create new, smaller particles by grinding, chipping in mixers and rubbing in conches we create new surfaces which need to be wet by the cocoa butter or fat mixture. This means restabilization. This may be accomplished by simply mixing, or conching at a temperature high enough to assure good surface activity of the cocoa butter. Also every time we increase the amount of fat it is necessary to stabilize the coating to the new set of conditions. This requires time, equipment and the expenditure of mechanical energy which can be best done at the time of manufacture of the coating, usually just before tempering and molding. And another characteristic about which we have little or nothing to say is the shape of these particles yet if they are flat, laminar, needlelike, more cube than oblong, oval or irregular and with indentations they have different characteristics of sliding over one another. Only conching influences shape by smoothing off the edges and corners.

These changes in particle size are, therefore, extremely important in complete chocolate control and in getting everything out of our cocoa beans we can that is consistent with the cost of doing it. This is intimately tied up with any action either by the chocolate manufacturer or the chocolate user who grinds to a finer particle size or who adds cocoa butter to thin out to a less viscous coating to get more coverage, or who adds lecithin or blends two or more coatings having relatively wide variation in fineness, fat content, or viscosity. Grinding costs money because it more or less establishes the rate of production in pounds per grinding machine hour. A fineness of 30-40 microns may be achieved by a production rate of double or treble that of a finer chocolate of 3-12 microns. This finer paste calls for more mixing time and even more fat to regulate viscosity. The prevention of contamination with a coarser coating is a factor frequently calling for more kettle capacity, additional pumps and separate conveying lines.

In the long run the user of chocolate must make the decision and weigh these improvements against the extra cost, for admittedly one of the effects of fine grinding is an increase in cost.

Chocolate Samples for Tasting

The samples of chocolate distributed by Mr. Clarke were made from the same formula; the fat, liquor and sugar content were identical. The only differences were their physical characteristics, caused by varying the degrees of grinding.

The smoothest sample had almost no sugar particles coarser than 7 microns and almost no cocoa particles coarser than 12 microns. About 90% of the whole mass was below 1 micron in maximum dimension whereas about 10% was between 1 and 12 microns. This had the lighter color.

The sample of intermediate fineness had maximum sugar particles of between 28 and 35 microns and maximum cocoa particles of 25 to 35 microns. Only about 80% of the whole mass was in the fineness range below 1 micron. The other 20% ranges from 1 to about 35 microns.

The coarsest sample had sugar particles having maximum dimensions of between 70 and 90 microns and cocoa particles whose maximum dimensions were about 50 to 80 microns. About 30% of the mass was in the submicron range and about 20% was in the range of 35 to 90 microns. Hence, about 50% ranged from 1 to 35 microns. This was the darkest color.

The finest sample had all of the flavor made available by grinding. In the coarser samples the harshness of the cocoa matter had not been removed nor mellowed by long hours of mixing and conching.

These samples demonstrated the importance on the operation of fine grinding and the influence of proper sequence of unit operations on the overall taste and color qualities of a good grade of chocolate.

Technical Literature on Chocolate Reviewed

Problems in Chocolate Liquor Production

Justin J. Alikonis, Food Technology, Vol. 5, No. 4 (1951)—Standardization of terms used in the chocolate industry is necessary to avoid confusion. The aims of the Inter-American Cacao Center are given. Though food technology has little control over the fermentation of cacao beans, it is important in roasting and grinding operations. A rapid method for re-dressing Aloxite Triple Mill Stones is given with methods to maintain a high production of nibs to liquor.

Chocolate Tempering Practice Survey

J. Koch, Inter. Chocolate Review, Vol. 6, No. 1 (1951)—The principles of chocolate tempering are discussed and theory of high speed tempering is developed.

Improvement of Cocoa-Type Coatings for Use in Army Rations

J. J. Alikonis and K. T. Farrell, Food Technology, Vol. 5, No. 7 (1951)—A cocoa type coating for use on confectionery rations able to withstand temperatures up to 120 F. for a long time, and still as palatable as regular fine chocolate coatings, was developed. These new, bloom-resistant and tasty summer-types coatings contained non-ionic surface active agents. Palatability was improved by the addition of non-fat milk solids.

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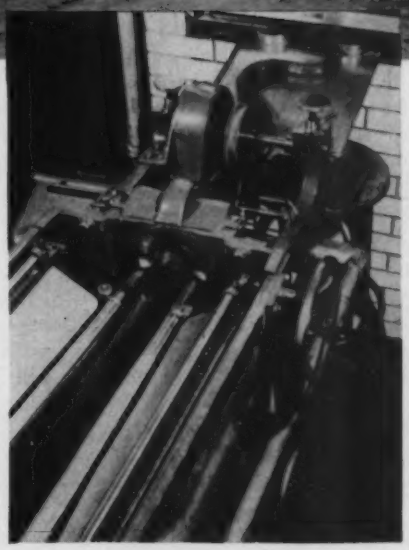

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CHOCOLATE SYMPOSIUM: Milk and Milk Chocolate

R. C. WELCH

Wilbur-Suchard Chocolate Co., Inc.

MILK solids are often used *in chocolate* to change its flavor and certain other qualities. The amount, and to a certain extent, the composition of the milk solids used are determined by the Chocolate Standards of the U. S. Food and Drug Administration (1). Briefly, the minimum milk fat content of milk chocolate is 3.66%, the milk solids content not less than 12% and the ratio of milk fat to milk solids not fat, must be within the limits of 1: 2.43 to 1: 1.2. This then requires on a moisture free basis a minimum of 29.166% milk fat in the milk solids and 12.548% total milk solids or with dry milk on a 3% moisture basis a minimum of 28.28% milk fat in the powder and 12.93% of the powder. These requirements will be changed if the milk fat content of the milk is increased above the minimum standards.

Milk solids for use in chocolate may be secured from several sources including milk, concentrated milk, evaporated milk, sweetened condensed milk, dried milk, butter, milk fat, cream, skimmilk, concentrated skimmilk, evaporated skimmilk, sweetened condensed skimmilk and non-fat dry milk solids. The fat and solids content of the selected items must fall within the previously mentioned ratios. Some of these products will be briefly discussed.

Milk dried by the spray process is preheated at various temperatures, usually condensed and then spray dried. It normally possesses a fine flavor, high solubility high fat absorption and compared with roller dried milk generally has poorer keeping quality and sells at a higher price. Certain patents (8, 9) have claims as to reducing the high fat absorption of spray dried powders, or increasing its free fat character.

Low preheat and high preheat temperatures used in the spray drying process of milk or non-fat milk solids are often of great importance in other food products, but in our experience they do not seem to markedly affect results in chocolate. It may be that the temperatures even with the low preheat product are sufficiently high to inactivate most of the enzymes present, although recent work reported by the U. S. Department of Agriculture indicates 7½-10 minutes at 200° F. may be necessary to completely destroy all milk lipase (2).

Roller process milk generally lacks some flavor and solubility of spray dried milk while having in its favor better keeping quality, slightly lower cost and less total fat requirement when incorporated into chocolate.

Vacuum roller dried milk is not of importance to the best of my knowledge. However, one or more installations of an internal drum drier operating under vacuum have supplied dried sweetened milk products to the chocolate industry in this country.

Block milk as described by Wijnoogst (3) and Born (10) is condensed full milk or cream with which pure sugar is mixed. The properties of the fresh milk, owing to the special process in the production of the article, are claimed to be preserved almost in their own entirety. In its preparation, vacuum drying is preferred for protection of the flavor. The highly concentrated sweetened milk product is cast in blocks which are often coated with fat. Block milk supposedly is used quite extensively in Europe. One of the products which Wijnoogst mentions has a milk solids content of about 49%, sugar 41% and water 9-10%.

In this country, variations of Block milk are supposedly quite widely used. In their preparation, milk may be preheated to the desired temperature, sugar added to the desired concentration and the warm mixture condensed under vacuum to about 70-72% solids. This may then be further concentrated to about 90% solids through special vacuum equipment. The resulting heavy plastic mass may then be grained off or dried in suitable equipment with or without the addition of chocolate, and with or without vacuum, but its sugar content may have to be adjusted to secure graining which is almost necessary if a workable product is to be secured. One method of continuous graining and drying of the plastic high density mass is used and the sugar content is about 68% and the moisture under 2%. The plastic mass may or may not be mixed with liquor and the granules or crumbs formed may be aged or dried under vaccum in tray driers or other suitable equipment. Many kinds of flavor may be secured with the numerous variables such as, preheating temperatures of the milk and sugar, homogenizing, condensing temperatures, sugar concentration, use of vacuum, aging of partially processed material and the possible addition of various kinds of chocolate liquor in the drying or later stages of processing. Hollender (4) has pointed out the protective action of certain sugar concentrations (16-25% for unhomogenized and 28-45% for homogenized on a dry basis) to the milk enzymes normally present in milk and by selective use of time and temperature, the development of different flavors is possible. Condensed milk (40-30 sugar/milk) may be diluted and spray dried in suitable equipment and sometimes milk is spray dried with a final sugar content of 10%. In a few cases, cocoa has been added to milk or skimmilk for spray drying.

Special milks. Recently put on the market are milk powders made from milk specially processed to give among other things a partial fat hydrolyses (4) (5) (11) (12) or other changes resulting in a flavor variously described as fresh milk, rancid, etc. These products are generally spray dried. Among the factors known to affect fat hydrolyses in milk are, natural milk enzymes, some of which are fat splitting (lipolytic) in character, added lipase, temperature and the fat surface upon which the enzyme works. The latter may be increased by homogenization or other forms of mechanical dispersion of the milk fat to finer globules to increase the

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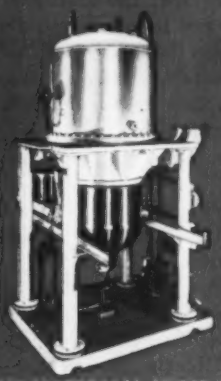

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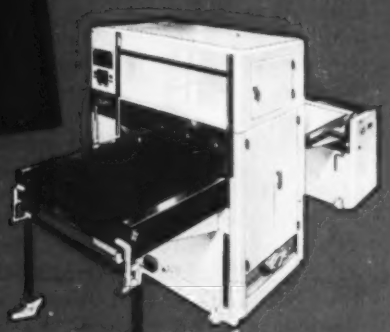

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surface area. Dr. Hollender (4) has described experiments and results obtained with this type of milk.

It may be possible to use the natural milk enzymes with suitable time and temperature, etc. to bring about similar flavors in block milk and as pointed out by Hollender (4) a certain sugar concentration gives some protection to milk lipase, i.e., raising its heat destruction point.

Whymper (6) in describing the drying of milk says, "The difficulties attending the reduction of fresh milk to a dry powder lie chiefly in the fact that high temperatures, even that necessary for pasteurization, impart to the milk a cooked flavour. For this reason, concentration to condensed form is conducted at as low a temperature as possible in partial vacuo. On the other hand, if the milk is not sterilised or the reduction to a powder takes place over too long a period, when oxidation of the fat occurs, or at too high a temperature, when a cooked fat flavour is imparted to the milk powder, the product suffers considerably, and the "cowy" flavour, so often mentioned to the author in America, becomes apparent in the finished chocolate."

Butter oil (7) may be made by passing cream through a destabilizer and heating device, separating to produce an oil in which 10% of skimmilk is found, diluting with warm water, neutralizing if necessary, reseparating, vacuum pasteurizing, chilling and packing. Special equipment is needed including destabilizer, special separator, vacuum pasteurizer and dryer and chilling and gas packing equipment. The product is claimed to have 99.5-99.9% fat and if properly produced, packed and stored, to have excellent keeping qualities. Other methods for producing butter oil are also in use.

Milk products used in chocolate should be fresh as possible due to their tendency to develop oxidized or tallowy flavors. Good milk chocolate requires good materials and good workmanship. There is however, apparently no agreement on what constitutes good quality milk chocolate, due in part to its use in coating, such a wide variety of centers and to the widely varying taste of people.

Cocoa butter having a green, oily or other off flavor will give this same character to milk chocolate in which it is used. The use of good cocoa butter is very important constituting as it does about 20% of the finished milk chocolate besides the butter supplied by the chocolate liquor. Cocoa butter is an efficient carrier of flavor whether it is good or bad.

Salt is often used in small quantities in milk chocolate. Flavors such as vanilla, vanillin, ethyl vanillin, malt extract, nut meats, spices, etc. are often used either alone or in combination.

Sugar is usually sucrose, either cane or beet, although, considerable quantities of corn sugar are used mainly to reduce apparent sweetness.

Milk Chocolate Manufacture—Following selection of the type or types of milk to be used we come to another important problem.

The selection of cocoa beans to be used in the production of chocolate liquor for milk chocolate will depend upon such factors as, the flavor desired, the color, and the liquor content of the finished product. A mildly flavored milk chocolate with a rather neutral or milk flavor generally calls for from 10-15% of liquor and for the more fancy grades of coating, the use of a goodly portion of such beans as Caracas, while for the plainer grades such beans as Accra will be used with others in a blend. A light colored milk chocolate may be secured by the use of 10 to 11% liquor derived from such beans as Samoan or certain lots of other varieties. Many of the stronger flavored milk chocolates such as those with hydrolyzed milk are made with 15 to 20% liquor and from the stronger flavored cocoa bean varieties. The roast of the cocoa beans in which the liquor is to be used for milk chocolate is often lower than that for cocoas or many of the dark American type coatings. This is particularly true of the flavor grades of beans. The degree of roasting may also be influenced by the subsequent heat treatment of the product. If the milk chocolate is to receive a high heat treatment, a low roasting temperature may be desired, but with cold conching, a medium to full roast is often used.

Mixing of the ingredients including the milk product, sugar, chocolate liquor, cocoa butter, flavor, etc. may be accomplished by machinery suitable for bringing all the ingredients to a uniform well mixed soft mass. The particular machines used will vary with the type of milk product used, the size of the batch, the length of mixing time, etc. The thoroughness of the mixing will influence to a certain extent the efficiency of refining which usually follows. Efficiency of *refining* or particle size reduction of ingredients passed between precision ground rolls depends among other things upon the amorphous or crystalline character of the product, the fluidity of the mass, the toughness of the materials, etc. Roller dried milk is possibly one of the more difficult products to make smooth. Some products will require only a single rather loose refining to reach the desired smoothness while others may require several passed and a tight setting in which case some of the refining may be done after conching.

Conching, either in a machine of that name or other equipment used to attempt to accomplish the same purpose is widely used. Its main purposes are to improve the flavor and palatability of the chocolate by the removal of acrid flavors, smooth or round the edges of the ingredients, possibly introduce new flavors by the use of either applied or frictional heat and to make a more homogenous mass and increase the fluidity. Milk chocolate is usually cold conched, unless of the Swiss type, when applied or frictional heat may raise the temperatures quite high. Milk chocolate with its appreciable quantity of the softer milk fat has different cooling and fat crystallization characteristics than when only cocoa butter is present. This will affect its handling qualities and its heat resistance along with such factors as lecithin, methods of processing the milk constituents, conching, fineness, moisture content, etc. The flavor or apparent flavor of milk chocolate depends upon the several factors previously mentioned and is appreciably affected by such other factors as conching time and temperature, conching with all or only part of the added cocoa butter, particle size or fineness, total fat content, age, temperature of the chocolate and the taster, size and shape of morsel sampled, the tasters sensitivity to certain flavors.

Milk products are used in other chocolate products other than Milk Chocolate including Skim Milk Chocolate, (1 Sect. 14.8) Buttermilk Chocolate (1 Sect. 14.9); Mixed Dairy Products Chocolate (1 Sect. 14.10); Sweet Choc-

olate and Vegetable Fat, other than Cocoa Butter Coating (1 Sect. 14.11); Sweet Cocoa and Vegetable (other than cocoa fat) coating (1 Sect. 14.12) and may also be used in Sweet Chocolate up to 12% (1 Sect. 14.6).

Milk solids or non-fat dry milk solids are often used in white coatings to improve their flavor and physical character.

Milk chocolate with its increased nutrient value due to the incorporation of milk solids is one answer to the critic who would have you eat everything you do not like. An ounce of milk chocolate with 20% milk solids gives you the milk solids of about 1½ ounces of fluid milk (1 x .2 x 8 = 1.6), satisfies your hunger, tastes good and gives you a good shot of energy.

(1) *Title 21—Food and Drugs, Chapter 1, Part 14—Cacao Products, Definitions and Standards of Identity from Federal Register December 6, 1944*

(2) *L. S. Department of Agriculture—Letter of March 5, 1952 by G. R. Greenbank and Abstract of Paper given by Greenbank and Wright at the 1950 meeting of the American Dairy Science Assoc.*

(3) *H. C. J. Wijnoogst, "The Use of Blockmilk in the Manufacture of Milk—Chocolate", January, 1951 issue of the "International Chocolate Review"*

(4) *H. A. Hollender (Abstracted by K. E. Langwill) "Special Milk Powders for Manufacture of Milk Chocolate"*

(5) *R. W. Mykleby, "Dairy Products for Use by Manufacturers" Talk given before Fifth Annual Production Conference. The Pennsylvania Manufacturing Confectioner's Association, April 26, 1951. The Manufacturing Confectioner Vol. 31, No. 6 (1951)*

(6) *R. Whymper, Second Edition (1921) "Cocoa and Chocolate" J. & A. Churchill, P. 315*

(7) *C. F. Weinreich, "Production of Dry Milk Fat" Publication of the Cherry-Burrell Corp.*

(8) *Hallquist and Campbell "Milk Chocolate" U. S. Patent 2,519,833 August 22, 1950*

(9) *H. O. Otting "Milk Product" U. S. Patent 1,882,028, October, 1932*

(10) *P. Born "Process for Production of Milk and Cream Chocolate" U. S. Patent 1,836,303, December, 1931*

(11) *H. E. Ottinger, "Manufacture of Milk-Containing Products" U. S. Patent 1,966,460, July 19, 1934*

(12) *H. E. Otting, "Method of Manufacturing Flavoring for Alimentary Products", U. S. Patent 2,169,278, August 1939*

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Plant Design

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Space Economics In a Medium Size Plant
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Sweetness as a Factor in Flavor Control
Wesley H. Childs, June 1950.
Sugar-Dextrose-Corn Syrup—Which Do You Use and Why
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Use of Sweetener By Type of Confectionery
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Candy Making for the Beginner
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Soy Products in Candy
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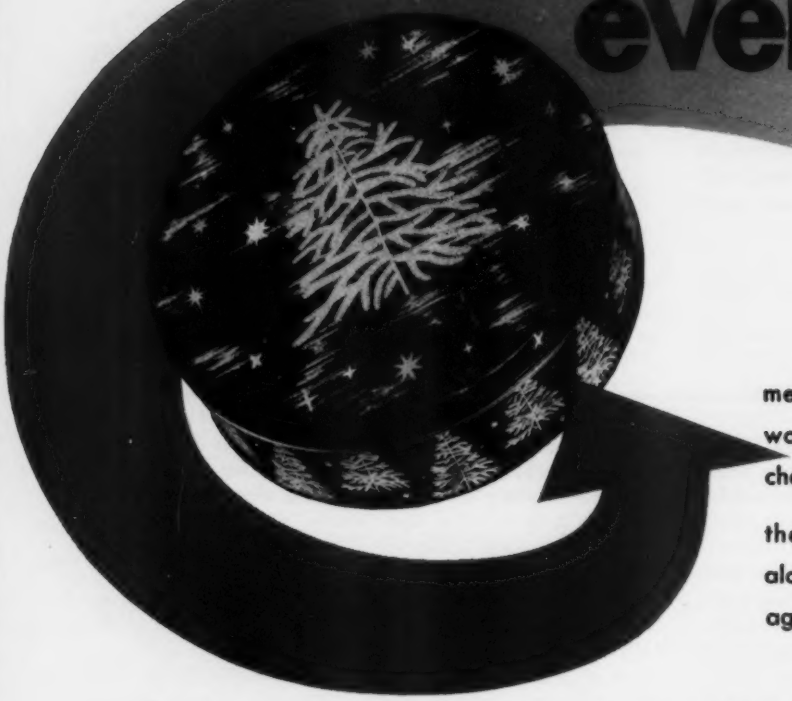
everyday



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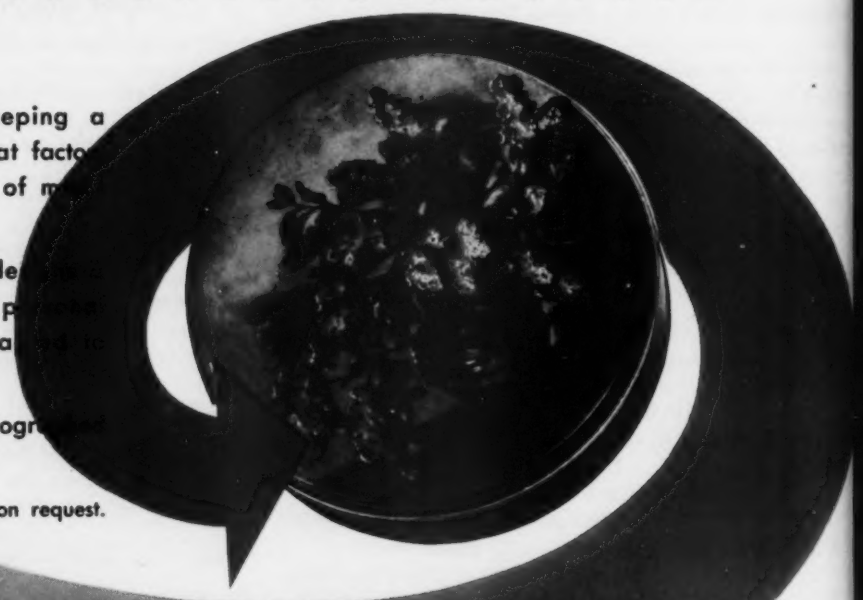

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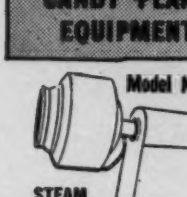

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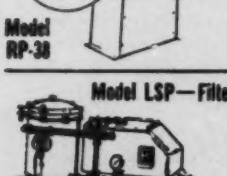

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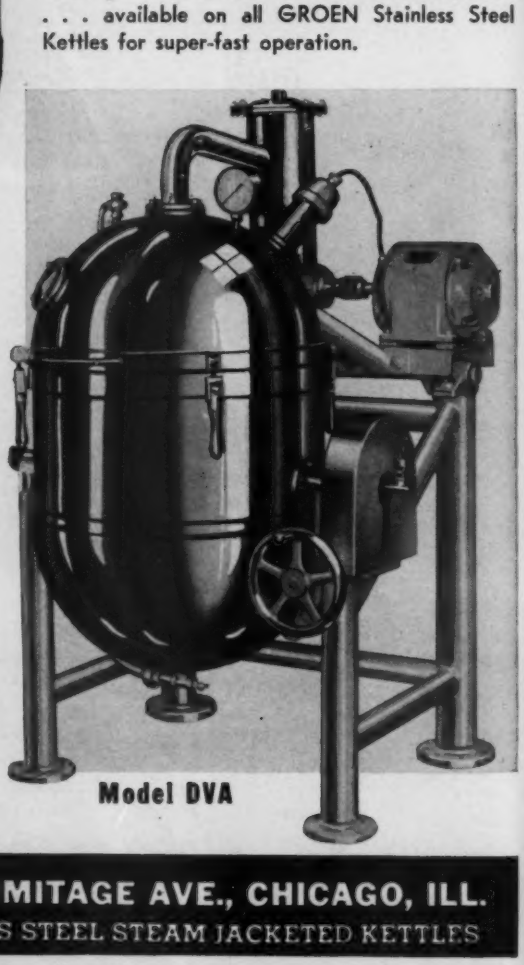

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SUGAR---It's Uses and Abuses in the Candy Plant

LOUIS LANG
National Sugar Refining Co.

THE importance of sugar to our very existence cannot be minimized. It is through sugar and sugars in general that we on this planet are able to exist. It is in this beautiful white crystal that the sun's energies have been stored up and made available to us, both as food, as fuel, as medications, as coloring material, and as fibers for the clothing we wear. It is this magic that I would like to discuss briefly. And it is this magic that makes me stop and hold my breath.

There are a number of very important and complicated chemical compounds which the chemist calls "porphyrins", so complicated that we cannot go into their discussion at this time. These porphyrins play a vital part in our existence. One of them, combined with iron, forms the substance in our red blood cells which is the transfer agent of oxygen into the blood stream and then carbon dioxide, the waste product from our bodies, out of the blood stream.

The other porphyrin compound that I would discuss is the one important to sugar. This one is combined with magnesium, and in that form is known as chlorophyll*, the compound you hear so much about today. It is in the presence of chlorophyll that the energy of the sun is stored up in the sugar molecule with only carbon dioxide of the air and moisture as the building blocks. If we had no chlorophyll, we would have no sugar, no wood-fiber—which, by the way, is made up of sugars combined together. We would have no starches, no fats; we would have no cotton, and a host of important drugs and dyes. Naturally, without sugars the plants upon which our animal husbandry depends would not be with us and we would have no beef, no meats in general. Even the elementary plants of the sea, upon which then depend all forms of aquatic life, would not be here since they, too, contain chlorophyll-like bodies which convert sunlight into energy-containing nutrients.

This, then, this magic in which the sunlight, through chlorophyll, is stored up in all of these forms primarily through sugars makes it possible for us to exist. If we now consider the importance of this conversion of sunlight through sugar, and its extreme importance to us, then we must take on an added respect for the product that I am about to discuss.

In speaking of sugar I am going to dwell on *natural sugar.* For these many years, we have been hearing the food faddist discuss "natural sugars" in contradistinction to sucrose, the product you know as delivered by the refinery and found in your sugar bowl. Wherein is this sugar *un-natural*? Wherein is it different from the same product, whether it be found in maple syrup, in an apple, in a date or in a fig, or whether it be found in a palm tree or a sugar beet, and, of course, in the sugar cane? It is a *natural sugar.* You receive it unaltered and just as it was in the plant but in a physical form where the other substances of the plant that normally accompany it have been removed. It is naturally white, and when in the fruit or plant stem its whiteness is hidden and covered by the ingredients that are in that fruit or plant.

It is about time that we talked back to those who speak of the other products as containing "natural sugar". What other products? Well, fruits, maple syrup, and so forth. We can stand up and proudly say "Yes, sugar is a *natural product, a natural sugar,*" and we should do it more often and more loudly.

Coming to the meat of this discussion: sugar, its uses and abuses in the candy plant, we have a product that will not stand all kinds of abuses. It is a product developed in the growth of a living plant and like all materials in living plants cannot tolerate extremely high temperatures particularly for longer periods of time without decomposition setting in. Witness the manufacture of caramel, where sugar is heated over a long period of time to temperatures as high as 400° F. In the early stages of this process, a yellowing takes place, during which sugar is broken down into other products, and as the temperature increases and as the time increases, that breakdown continues until we have a black mass known as "caramel". If then continued beyond that, we wind up with a mass of carbon which looks like so much porous coal.

In making a candy, if we realize that to achieve a certain result we must attain a certain temperature, we will definitely enter a region in which sugar is broken down more rapidly by exceeding that temperature. For example, if we want to make a fondant and we want to make a very white one, and we do know that to achieve the desired consistency and grain we must go to 238° F., it would be folly to go higher.

Yet what happens? I have seen a batch of fondant in which the directions were given to cook to 238° F. The man in charge of the kettle carefully noted when the mass reached 238°. Then he very efficiently removed the thermometer, took it to a sink to clean it, came back to the kettle, prepared the container into which it was to be emptied, and *then*—and then only—turned off the gas flame. What happened between the time that he took his thermometer out and came back and prepared the receiving vessel, I was not able to ascertain since the thermometer was no longer there. But you know as well as I do that the temperature had gone up beyond the point desired for that fondant. The result would naturally be a fondant with more color than was desired and with a different consistency than management expected.

Coming back to the same type of cook, I have found that one man would read the thermometer with the stem resting on the kettle bottom, whereas another had the thermometer suspended in the boiling mass where the sensitive part of the stem did not touch the kettle wall. Here again we would have two different results although the thermometer might read the same in each case. Naturally, the batch with the thermometer stem touching

(Editor's Note: Please see "The Long Green", M. C. Jan., 1952)

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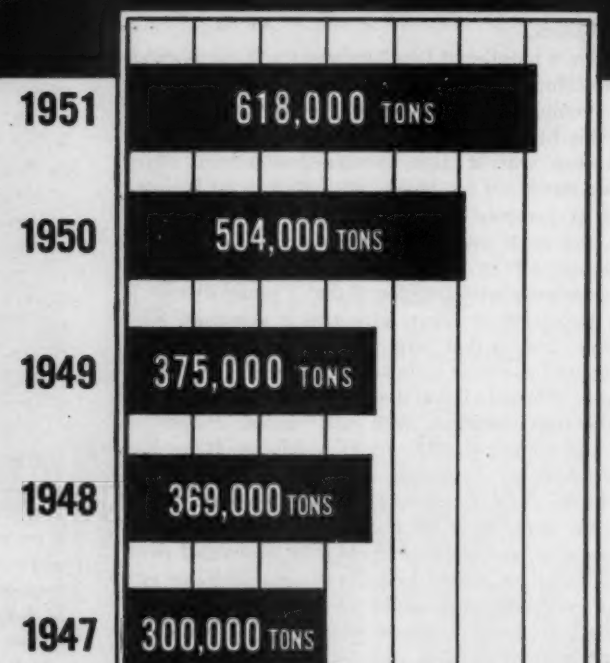

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the kettle wall if boiled to the same temperature as the other one would actually have been cooked to a lower temperature because the thermometer would read incorrectly higher when the sensitive end touches the kettle wall.

Now, let us assume that a plant making fondants is getting different results on different days, or at different times, or even on the same day. Such differences are more likely to come from incorrect manipulations than from the refined sugar, in which there is such an infinitely small difference from batch to batch. If a fine granulated sugar had 0.01% ash, it might vary a few thousandths of a percent away from that between batches.

In the foregoing example I have shown what the use of the sugar should have been, and also how it was abused.

I spoke of cooking the sugar to a temperature and here I would like to elaborate on that subject.

This past year in Philadelphia and New York, Mr. Meeker presented some information to the candy group on the instruments used for testing of sugars, and he did an excellent job. He showed the refractometer, the polariscope or saccharimeter and explained how they work. He showed the instruments for determining the specific gravity or density or Brix. However, these are the instruments that the sugar refinery uses in the laboratory for determining sugar content. But in the refinery proper we do use one very important instrument that you use daily. The refinery uses the thermometer in the sugar boiling operation. Of course, you like it constantly for determining the solids content of your batch. I would like to discuss this with you for a few minutes.

Distilled water boils at 212° F. at sea level. If salt or sugar is added to it, it boils at a temperature higher than 212° F. If it contained 10% of sugar, it would boil at a fraction over 212° F. However, if we continue to boil that solution, driving off the water until it contains 50% of sugar, its boiling point at that time will be just over 215° F.

Now let us go a step further, and if we boil that solution to 235° F. we will have driven off more water and at that point it will have a concentration of just inside of 85% sugar.

Thus, the thermometer becomes a method of testing the concentration of the batch as the boiling progresses.

Until now I spoke of a pure sugar solution. When this solution contains "doctors" such as invert sugar or corn syrup, the boiling point at a given concentration is altered. But one thing remains definite. If the solution has a definite amount of sucrose and invert sugar and water, it would have a definite boiling point. Every time that this mixture is boiled to some predetermined temperature and stopped accurately at that temperature, you will have as definitely determined how much sugar, invert sugar and water is in that mass as though you had sent it out to a chemical laboratory for analysis—providing no inversion has occurred due to the presence of acid or no destruction of sugars has taken place due to alkalinity, or excessive heating time.

It is this exactness imparted by the use of the thermometer that makes it possible to duplicate results day after day, year after year.

Of course, we are not all working at sea level and there are barometric changes in the atmosphere that cause some changes in the boiling point of water, and naturally in that of sugar solutions. The normal atmospheric changes from day to day give rise to changes of only fractions of an inch in the barometer reading and would cause changes in boiling point of only about ½° F. Therefore, there is nothing to worry about on this score particularly since most candy thermometers read in 2° divisions.

On the other hand, if a candy is to be boiled at a higher than sea level elevation where the boiling point of water is lower than 212° F., then the candy would have to be boiled at a lower temperature.

So that once you have established with the thermometer the temperature which gives you the concentration desired for your particular product, if on replacing the thermometer, the new one is just as correct as the old one and it is used judiciously and none of the errors made that I spoke of before, your results should be comparable day in, day out.

What is done with this fine instrument? Instead of reading it with the line of vision at right angle to the thermometer at the upper point of the mercury column, I have seen it read from above looking down on it. In this way it is easy to be wrong by two divisions or 4°, and in this case the batch would be boiled too high, for the operator would be reading it 4° lower than it actually is.

An abuse that I have encountered several times in the candy plant comes about in either of the two cases that follow.

In Case No. 1, the manufacturer says that he would like to use liquid sugar but his foreman tells him that it contains too much water for his particular batch. Liquid sugar, as you know, contains about 67.5% of sugar solids and 32.5% of water. After visiting this plant and observing the formula, it was found that the batch contained 62% of sugar and 38% of water—even though he was using dry sugar—water far in excess of any normal operation. After watching several batches and confronting the foreman with this situation, he explained that the owner was interested in seeing the kettles operating at all times and that they should never be idle. If he made candy batches at that rate with the normal amount of water, the candy would come off so fast that with the amount of labor available to him he could not handle it. The boss refused to give him more labor for the job, therefore to satisfy the boss he put an excess of water in the kettles so as to keep them going at all times.

Situation No. 1 had to do with a hard candy; Situation No. 2 was the exact duplicate of the first except that it was in the manufacture of fondant.

Now, of course, here we have a deliberate abuse of the sugar and possibly other ingredients in the kettle, not to speak of the excess cost of fuel and, for that matter, water. The extra boiling time required to boil off the water was certainly not helpful to the color of the fondant or, for that matter, that of the hard candy, and most certainly brought on the destruction of a certain amount of the sugar solids present. Use in these cases would have dictated a very much lower amount of water, possibly 20% of water to 80% of sugar.

I am happy to say I have not seen the following abuse in many years. It had to do with crude sanitation. All too often, the bag of sugar was taken off the pile, opened and tilted over into the kettle without any effort to clean

off the dust from the outside of the bag, which by ordinary laws of gravity joins the sugar in the kettle. The simple procedure of brushing off the bag before this happens has eliminated this abuse.

Sometimes the sugar will not allow itself to be abused. It will kick back and say "No". I am thinking of the case where a large manufacturer of gum drops was much disturbed because in crystallizing them he was unable to get a second batch of crystals. Examination of this particular set-up showed that the gum drops being crystallized were highly acidic and that the acid was seeping out from the gum drops into the surrounding syrup, causing enough inversion, particularly when the syrup was boiled up for the second crystallization.

This might have been avoided by crystallizing a mixture of less acid type gum drops with the acid type gum drops, getting a lower concentration of acid in the syrup and possibly thus getting a second crop. Of course, with chemical control it would have been possible to neutralize this acid before the syrup was concentrated for the next batch, thus getting a second crop.

I have seen sugar wasted, and, of course, that is abuse. A manufacturer of candied fruits could not get a second crop of candied fruits from his residual syrup. Not knowing what else to do with it, it went down the drain. Today, this same manufacturer neutralizes the acids that have been drawn from the fruit and gets at least one more crop.

Another abuse that sugar is subjected to takes place in its storage. Stored in damp warehouses, the sugar is attacked by mold and yeast and then ferments and is said to be "sour". Sugar stored in warehouses where temperatures and conditions of humidity fluctuate very much is apt to become hard and then difficult to handle.

Another abuse that sugar is subjected to takes place in some plants where the ball beater is covered with damp cloths through the night. Under those conditions, mold and yeast develop readily on the beater and then find their way into the product, resulting in spoiled cream centers, etc.

All this time I have been speaking of the abuse to the *sugar*. Actually, it should have been the abuse to the *whole product*, for in most cases the other ingredients are damaged at the same time.

At this time I am thinking of a chocolate-coated butter cream which developed mold between the cream center and the chocolate coating. This could be traced to the re-use of flour in which the centers were rolled, the used flour picking up moisture and then becoming moldy. Flour has a greater tendency to mold than starch, for it contains minerals and other organic substances, particularly proteins, all necessary to mold and yeast development. Starch has most of these eliminated and has been dried at high temperatures. Starch, of course, can get moldy but not as readily as flour and is finding increased use of such dusting operations. However, the used material should not be carried over from day to day, for it is high in moisture and susceptible to mold, etc.

Boiling candies in kettles where the heating surface is not covered with liquid is another source of sugar destruction and with it color formation. Of course, we cannot neglect the pre-seeding caused by omitting the operation of washing and steaming down the crystals on the kettle wall.

Another source of pre-seeding occurred in a kettle where the valve on the outlet pipe was so far below the kettle that sugar crystals above the valve and in the line never did dissolve during the cook. This was eliminating a small portion from the bottom after the sugar in the kettle was all dissolved and returning this portion to the boiling solution. Of course, final correction was made by bringing the valve right close to the kettle.

As you all know, different pieces of equipment act differently. Some have a very large amount of heat stored up in them, so that even after steam is turned off the temperature will continue to rise in some cases by an appreciable amount. This should be taken into account, particularly in going from one piece of equipment to another, or in attempting to make a new product from a given set of directions.

A very serious abuse comes about by inaccurate measurements of citric or tartaric acid, whether used as inverting agents or as flavors. The use of a heaping spoon or spoons or other vessel will lead only to heaps of irregular results. These should be given to the operator in previously weighed pickets.

Fluctuating steam pressures at the kettle will result in fluctuating boiling times with attendant lack in uniformity of final product.

And a little thing like not cleaning and drying the iron molds for pressed mints will cause stains and yellowing of a practically all-sugar candy that should be beautifully white.

And last not an abuse but a lack of use. Why is so little advantage taken in the use of soft or brown sugars, with their fine flavors and colors? They are less expensive than white sugar, yet have properties (namely, color and flavor) for which you usually pay more, and they contain some invert sugar which is generally more expensive than sugar. The variety of colors and gradations of flavor should add immeasurably to such confections where butterscotch or molasses flavor is desired. They are also valuable as a background material for maple flavor, and you should find their use interesting in caramel. So re-examine your products for incorporation of these fine ingredients.

Before I close I again would ask that sugar be treated and considered with the respect it deserves in your product. Well do I remember that in Germany rock candy, which is pure sugar, was called "candies zucker" and I also remember the many tons of cube sugar that were shipped to Africa where children bought it as penny candy. Sugar is the body of your candy—you add the soul.

Sugar in the Candy Plant

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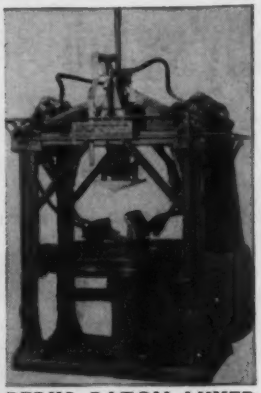

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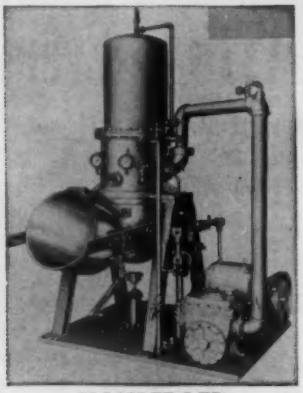

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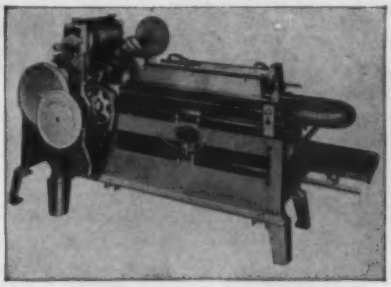

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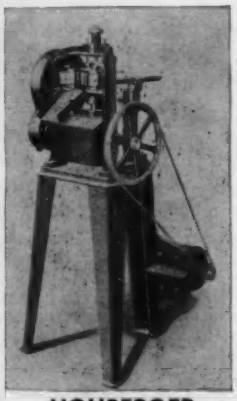

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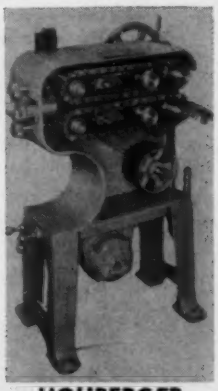

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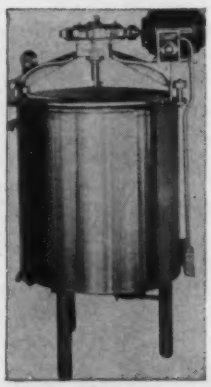

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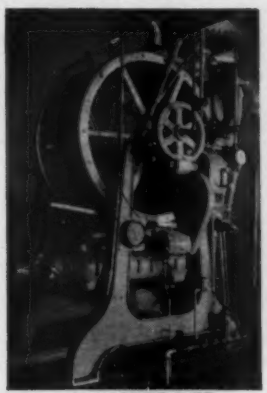

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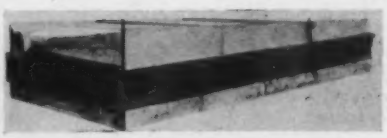

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WORK SIMPLIFICATION---Everybody's Job

JOSEPH R. RYAN

Supervisor, Work Simplification and Industrial Engineering
The Atlantic Refining Co.

A Work Simplification Program is a common sense approach to improving methods by employing the brain power of the entire supervisory organization in your company. It is an organized method for stimulating and helping supervisors to:

1. Eliminate unnecessary work, which takes time and effort and yet adds nothing to the income of the company.
2. Combine necessary operations, to accelerate accomplishment, and get two for the price of one, both in effort and cost.
3. Simplify the necessary work, make it easier and quicker to do, make it easier to learn and to supervise.
4. Improve upon the utilization of equipment, materials, and facilities.

Work simplification training develops a questioning attitude directed towards improving anything that is done. It provides the foreman with simple, common sense improvement principles which he can use to help him think up better methods. Specifically, a work simplification training program for supervisors consists of five essential parts:

First, Teaching the supervisor how to improve methods.

Second, Assisting the supervisor to apply what he has learned.

Third, Referring the supervisor's ideas for better methods to management for approval.

Fourth, Following-up to maintain activity.

Fifth, Reporting results to management, the department head and the supervisor.

Our research and our experience has taught us that each of these parts is as essential as the other four.

Teaching:

Supervisors must be taught how to go about simplifying the work they do and the work they supervise. Most supervisors are improvement minded but few know how to go about simplifying work. They must be taught how. This can be done in formal or informal training conferences and in laboratory or work sessions. In the laboratory sessions the supervisor "learns by doing", the most effective method for learning known today.

For the purpose of demonstration, I would like to talk about three work simplification tools or techniques which can be taught to supervisors. These are, by no means, all the techniques which can be taught, nor are they necessarily the best ones for you. However, they will serve to show you the sort of things you can teach your supervisors.

Work Distribution Analysis enables the supervisor to make several types of improvements. It gives him a bird's eye view of his job. It helps him get at first things first and provides him with a planned work simplification program.

We may as well admit that in your company as well as mine, there are many operations which have crept into our processes and procedures which are not necessary. In many cases, well meaning people have set up tasks which are being well done by competent personnel. On analysis, however, we find that this effort is misdirected. For example, a batch compounder takes time out to write down every formula in a little black book which he keeps in his pocket. This is waste and this is the sort of thing that work simplification endeavors to eliminate.

Through the proper use of this work simplification fact-finding technique the Supervisor is aided in his search for possibilities of eliminating misdirected effort or unnecessary operations.

In this day and age none of us can afford to waste the skill of our personnel. By analyzing the distribution of tasks among our employees, we can frequently find that a reassignment of personnel will result in better use of skills. How many of our highly skilled production workers have to stop producing to manhandle materials?

Training in Work Distribution Analysis teaches the supervisor how to spot and correct the improper use of skills, and can do a lot about reducing waste.

The even and fair distribution of work among the employees is an essential ingredient to good morale and good teamwork. Many a bottleneck has been broken by redistribution of work so that no one was overloaded nor underloaded but each one had just enough to do to keep him busy throughout the work day.

If any of you saw Walt Disney's Cinderella you will recognize this tune, "Go up and do the attic and go down and do the cellar, you can do them both together, Cinderella". Obviously, Cinderella cannot do them both together yet how many times are we asking our employees to perform unrelated tasks at the same or almost the same time. The assignment of too many unrelated tasks, of course, tries to make "Jacks of all Trades" of our employees and they usually wind up being masters of none. This costs us money.

Work flow analysis enables the supervisor to find steps in the process which can be eliminated because they are unnecessary. It helps him to improve the sequence of steps by diagramming them. It helps him to eliminate delays in the process by highlighting them. It helps him to locate unnecessary and wasteful backtracking which may not have been noticed before. Savings can be made by combining steps in the process. In short, getting two for the price of one. These possibilities often show up in a work flow analysis.

An analysis of the work flow also shows the tremendous number of times a product is handled. Just the elimination of pick ups and lay downs can result in

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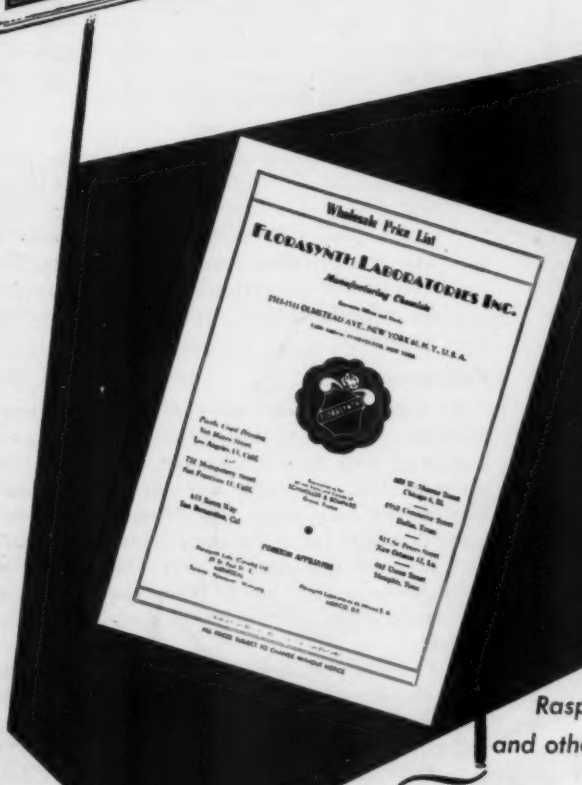

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Work place analysis is a study of the steps taken to perform an individual operation in a process.

This is a detail tool and is used for the greatest degree of refinement. Using this technique, a supervisor is aided in eliminating unnecessary steps in an individual operation and reducing the overall number of movements required to perform the operation. He is taught to simplify the operation in order that it may be done more quickly and easily and at lower cost.

These three techniques, Work Distribution Analysis, Work Flow Analysis, and Work Place Analysis, form a unified and systematic pattern for the supervisor to attack the problem of improving the methods under his supervision. From one analysis of the distribution of work a supervisor may find several processes which could stand investigation. Each of these processes is a potential area for cost reduction through work simplification.

Furthermore, each work flow analysis may provide several opportunities for operation analysis of the individual steps in the process. The supervisor, by using these three techniques, can thoroughly review all of the operations under his control. Assuming that he does so, when he is finished he can be pretty well assured that he has not missed any major opportunity for work simplification.

Let me hasten to say, however, that improvement never becomes impossible. It is a never ending thing. I will venture to say that once a supervisor has gone through his department using the three tools that he can start back at the beginning, do the whole procedure once more, and still find additional worthwhile improvements.

We have not touched on Methods Improvement Check Sheets, Possibility Analysis, Man and Machine Analysis, Work Place Layout Analysis, all of which are effective work simplification tools.

Let me repeat, the techniques which are to be taught should be very thoroughly reviewed to make sure they will apply to your business and be useful to your Foreman.

Assisting:

Strange as it may seem, it is not enough just to teach a supervisor how to go about simplifying the work—he has to be helped. I can almost say categorically that the results you will achieve will be in direct proportion to the amount of help you give your supervisors in getting started. You cannot expect them to change over night or put into immediate use techniques with which they have never had any experience.

You not only have to help them develop ideas, but you have to help them present their proposals to management. Many supervisors just don't know that a poor presentation of an idea may make the *idea itself* appear to be unsound. Many supervisors have the attitude that it is the boss' responsibility to accept ideas. Especially since he has asked the supervisor to think them up. They just don't understand the necessity for selling ideas.

Furthermore, most supervisors don't recognize that it is necessary to sell an idea to three people. The idea must be sold to the worker who is going to use it, or it may flop. The proposal very frequently has to be sold to the supervisor's own associates. I believe you recognize the fact that many work simplification ideas affect other supervisors in your company and unless all supervisors are in agreement, it is practically impossible to make it work successfully. I believe we all recognize, and certainly the supervisor does, that the big boss has got to be sold on an idea before he will authorize the expenditure of time or money in putting it into use.

Referring:

Wherever possible, the existing procedure for handling supervisor's ideas should be maintained. In order to make the program operate to the best advantage, there are four safeguards that we have found mandatory:

1. All proposals, good or bad, accepted or rejected, must ultimately be reported to the chief executive. The reason for this is obvious. We have all heard people say, "that was my idea but the boss stole it." You can prevent this happening by insisting on every proposal being reported to the top man.
2. Provide for prompt, fair and competent review of all proposals submitted. In my experience, very few supervisors expect to hit the jackpot every time. They know that some of their ideas are not and will not be acceptable. All they want to know is that it was turned down by people who were competent to judge, who gave it a fair hearing and who didn't pigeon-hole it because they were afraid of it.
3. A third important safeguard can be called recognition. If you ask your people to think up ideas for improving methods, you must expect to give them formal recognition. This sounds easy, but you will find recognition may give you some headaches. Sometimes, for one reason or another, you won't want to give the supervisor a firm pat-on-the-back. But, there is no alternative you must give credit—it is a must!
4. Make the widest practical use of the proposal throughout your entire company. Many times you will find that a supervisor has a work simplification proposal which can be used both in his own and in other parts of the business. You do not get the full potential unless you provide for the widest practical application of the original proposal.

Follow-up:

By follow-up I don't mean an occasional letter from the boss or a prod at some Production meeting—I mean a planned week in and week out, year in and year out program. Our experience and our research has taught us that follow-up makes the difference between a program that lasts for a few short months or a cost reduction program that goes on year after year. Follow-up means that someone has to be on the job, encouraging and assisting the supervisor to continue to develop better methods.

One company that we know of has been operating a work simplification program for 13 years and they believe their results are better today than they were in the first two or three years. They are convinced that they have achieved these results through constant and intelligent follow-up. They didn't delegate follow-up down the line until it got lost!

In our own experience we have found that the moment we stop contacting our supervisors and helping them to develop new ideas, the proposals stop coming in. When

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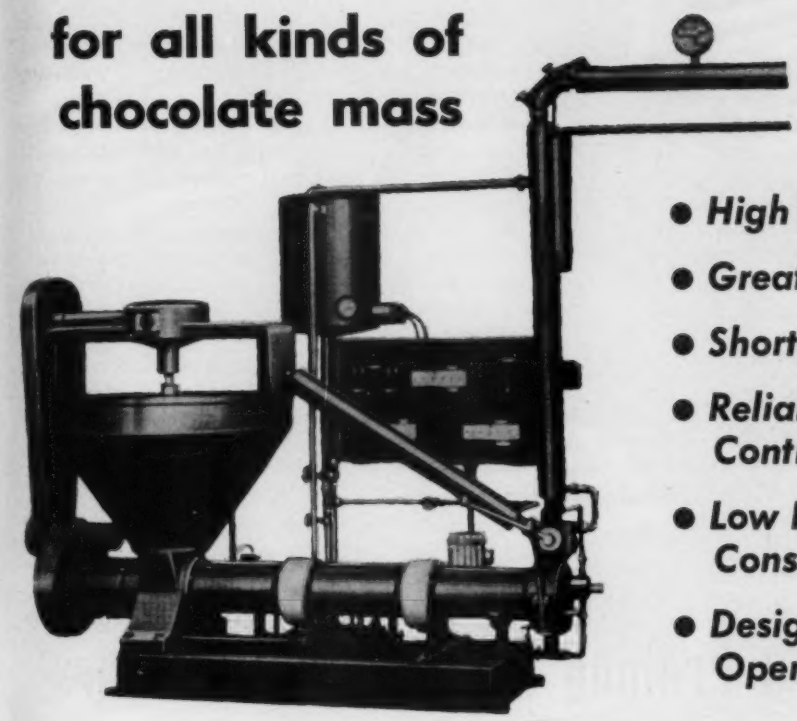

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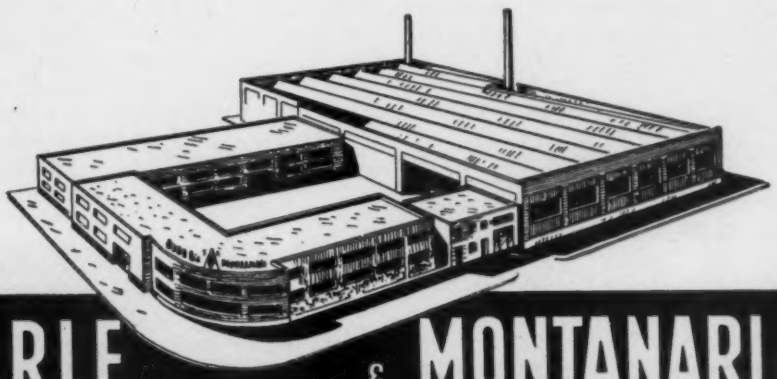

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we start to contact them again, to help them and assist them, the proposals begin to come in again. You can make the rate rise and fall almost at will by simply stepping up or reducing the amount of help and assistance you give the supervisor day in and day out on the methods improvement ideas he is trying to develop.

Reporting:

Last, but not least, the fifth essential part of a successful work simplification program, is reporting results to management, to the department head and to the Trainee (the foreman).

A program such as this will cost you time, money and effort, and you want to know what you are getting in return. It is wise to start out at the very beginning by expecting regular reports on accomplishments. These reports will serve several purposes:

1. Provide a real check on the usefulness of the techniques that are taught to the supervisors.
2. Spot bottle-necks in the flow of ideas from the first line supervisor through the top management.
3. Provide the basis for action before some bug develops in the program which might wreck it. You will be able to adapt yourself to changing conditions.
4. And enable you to assist your supervisors to do a better job along work simplification lines.

Reports of accomplishments to your supervisors will do a great deal towards encouraging them to keep going. Once everyone in your supervisory organization becomes thoroughly convinced that you are embarked on a real cost reduction program through work simplification, you will find that it will become a part of their regular work and they will do it if you continue to help them.

Practically everybody in your organization will learn something from a work simplification training program for supervisors.

First, the employee will come to know he is working in a company which is doing everything within its power and within reason to keep itself competitively sound, to improve working conditions, to progress.

Second, the supervisor will learn how to do things that he has been expected to do. He will learn that management is aggressive, that management wants to be competitive, that management, above all, wants him to participate in managing.

Third, Management will learn that the supervisor is capable of improving the methods under his control. It will learn that costs can be reduced through work simplification by management—all levels of management—in a serious and never-ending program to reduce costs can bring results.

Management will learn that work simplification does work and will work but it only works for those who work at it.

PMCA CONFERENCE

ANTIOXIDANTS--To Prolong Shelf Life of Candies

HELEN M. ROBINSON

Chemist, Agricultural Chemical Research Division
U. S. Department of Agriculture, New Orleans

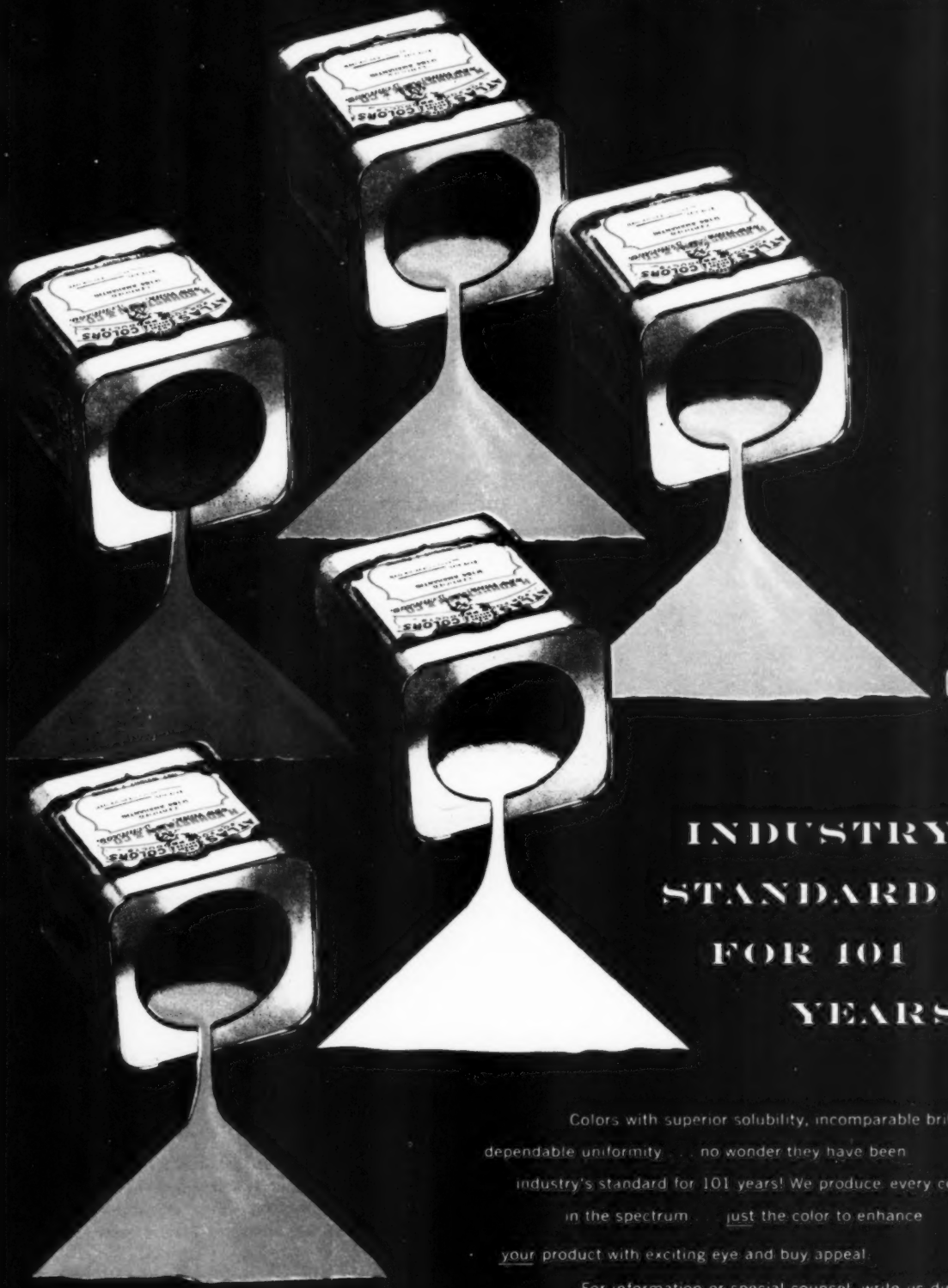
IN connection with the work on sugarcane, we conduct investigations on candy in cooperation with the National Confectioners' Association. While sugar is a principal ingredient of candy, and its use obviously can be extended by the development of new and improved confectionery products, it is not the only agricultural commodity with which we are concerned in these studies. Many others contributing to improvement in taste, keeping quality, and nutritive value are studied.

Candies are prepared for us by a professional candy-maker using methods approaching as nearly as possible on a five or ten-pound scale the industrial processes. New formulas are worked out for both old and new ingredients.

In our chemical laboratory for the past two years the emphasis has been on increasing the shelf-life of fat-containing candies. We have approached this problem by investigating the use of commercially available antioxidants in the stabilization of fat-containing candies against oxidative deterioration. These include the so-called synthetic antioxidants, as well as the natural antioxidants found in a number of products. Among the synthetic antioxidants that we have investigated are nordihydroguaiaretic acid, butylated hydroxyanisole, propyl gallate, lauryl gallate, and many others. Products containing natural antioxidants investigated in our work include some of the oat gums, yeasts, and the tocopherols, natural antioxidants themselves.

The objectionable odor and taste of rancid fats can result from several different chemical reactions, but the types of rancidity of most importance in the fats used in candy are oxidative rancidity and hydrolytic rancidity. Oxidative rancidity, as the name suggests, results from a chemical action of the oxygen of the air on the reactive unsaturated compounds present in fats. The susceptibility of a fat to rancidification can be determined by the rate at which it forms peroxides. The peroxides can be detected by a chemical test and in this way increasing rancidity of a fat due to oxidation can be measured. Hydrolytic rancidity is a different reaction which takes place in the presence of water and is promoted by minute amounts of enzymes or acids or alkalis. Certain free fatty acids formed in this reaction have an objectionable odor and taste and contribute to the growing rancidity of the fat. The extent of formation of these fatty acids is measured by titrating the acids liberated. A fat may develop one or both types of rancidity, and in order to have a true picture of its stability, it is necessary to measure both oxidative rancidity and hydrolytic rancidity over a period of time.

Among the different types of fats widely used in candy



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which we have studied are the following:

1. Hardened vegetable oils of the type of shortening on the market today.
2. Animal fats which have been specially processed for commercial shortenings.
3. Butter
4. Hardened coconut oil.

Hardened Vegetable Oil

For our work we used an excellent grade of hardened vegetable oil (melting point 99-101° F.) which is widely used in the candy industry. Most vegetable fats contain tocopherols, which show vitamin E activity, or other natural antioxidants which give the fat excellent protection against oxidative rancidity. The loss of tocopherols in commercial processing of edible vegetable oil products is relatively small.

If the vegetable oil is one containing what are called high molecular weight fatty acids, even if there is considerable hydrolysis later, the resulting acids which are freed do not all have an objectionable odor or taste. It is the lower fatty acids which, when they are present, contribute to the odor of rancidity.

Animal Fats Other Than Butter

The vegetable fats contain certain natural antioxidants which account for their very good shelf-life, while refined animal fats are less stable due to lack of these materials. Some progress has been made in recent years in improving the stability of lard and other animal fats by more careful processing. A very limited stability, in comparison with vegetable shortenings, is inherent in the product. Manufacturers, however, remedy this situation by the addition of any one of several commercial antioxidant mixtures. Most of the processed animal shortenings now on the market contain an antioxidant and so state on the label. The meat industry has developed and uses one of the best antioxidants, butylated hydroxyanisole. It is usually used in combination with propyl gallate and citric acid or phosphoric acids.

Generally, in the manufacture of these so-called bland type products, the processing steps are similar to those applied to crude vegetable oils for the manufacture of vegetable shortenings except that alkali refining is omitted and efficient steam stripping in the deodorizer is depended upon to reduce the free fatty acid content of the fat.

Butter

The butter used was of 90 score and fresh. It was obtained from a large local dairy and guaranteed to have been churned within the week. It had an initial peroxide value of zero while the free fatty acids were very low. With all these precautions, different lots of butter varied somewhat in stability. Some special work was done to determine the advantage of using freshly churned butter as compared with butter of high score which had been in cold storage for a month. A quantity of fresh butter was obtained and part of it used immediately for preparation of butter creams, butter caramels, and fudge. The remainder was placed in storage and used after a month had elapsed, for making a similar series of candies. The results of the tests for oxidative rancidity, determined as peroxide values developed by the fat during storage, show a definite advantage for freshly churned butter over the same butter kept in cold storage. The fresh butter candies had a shelf-life longer by at least a month than that of the candies made with stored butter. Much of the spoilage in butter is of the second type—hydrolytic rancidity, and is due to bacterial action. One of the purposes of incorporating salt into butter is for its preservative action. Butter contains many of the lower molecular weight fatty acids, and after hydrolysis these acids are freed and have a very disagreeable odor and taste. Butter, far more than the other fats, should have some protection against free fatty acid formation when used in candy.

Hardened Coconut Oil

This is a shortening with narrow plastic range. It is suggested that if coconut oil is to be used in a shortening in large proportions the product is best made by blending unhydrogenated coconut oil with about 8-12% vegetable stearin and as much cottonseed oil or other liquid oil as may be permissible to use. Highly hydrogenated coconut oil has a melting point of only about 111° F.; hence, vegetable stearin made from this oil is unsatisfactory.

There have been a few suggestions in the literature that the use of a hardened oil which is pretty highly saturated would produce a very stable shortening because it could not be oxidized easily. Theoretically this is true. You might not get oxidation, but there is nothing to stop hydrolysis. Hydrolysis of coconut oil yields acids which have a somewhat soapy flavor. If very much of this fat were present it would certainly impart a disagreeable after-taste to a piece of candy.

Fats were tested alone and with special antioxidants. Cream fondant, fudges, caramels, nougats, and a spun peanut butter candy were made containing the same fats as well as the fats with antioxidants. The samples were placed in an air oven at 86° F. (This work was done in an air-conditioned building which had pretty evenly controlled humidity conditions.)

Results of Tests

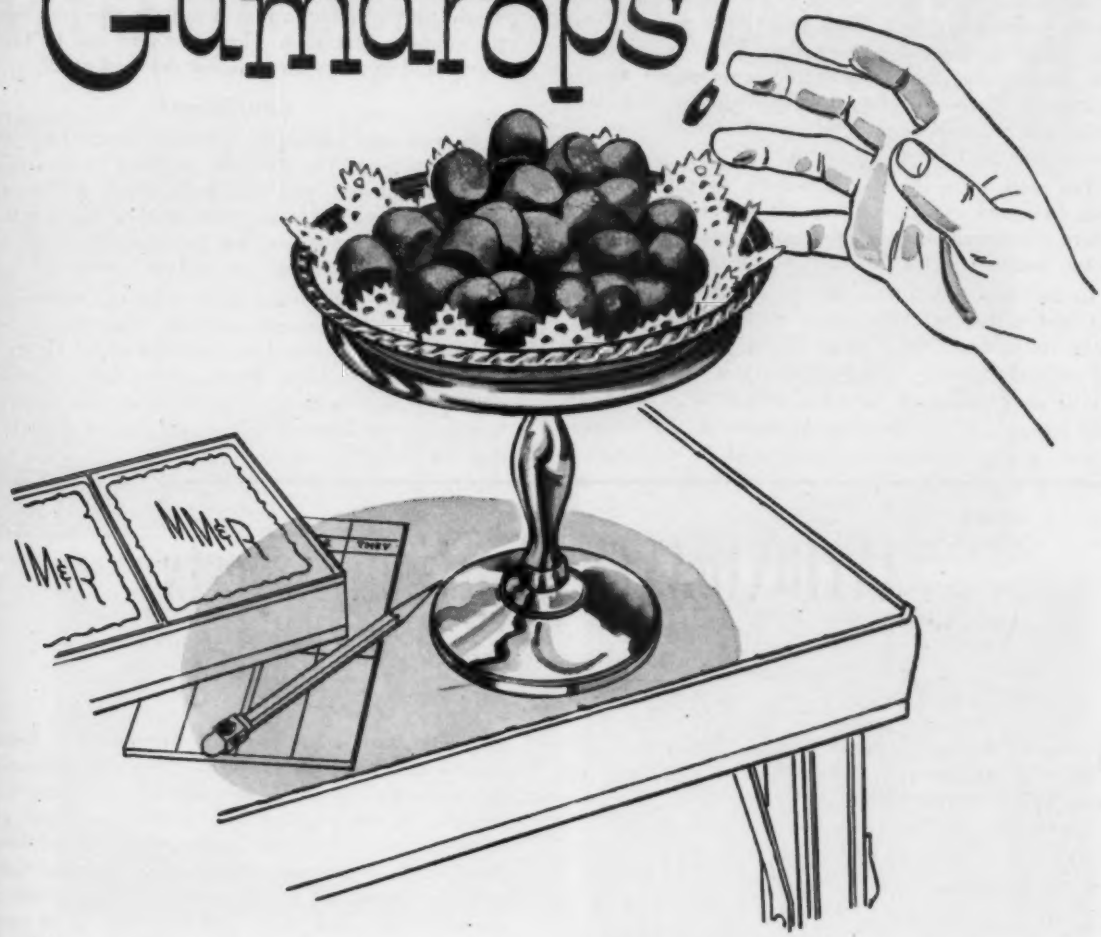
Samples were removed from the ovens after storage times (periods) varying from two to 24 weeks, and in some cases even longer. The fats were extracted from the candies and free fatty acid and peroxide determinations made.

Hardened vegetable oils, as expected, were found to be very stable to oxidative rancidity. No peroxides were formed for weeks. In fact, the candy had changed enough in appearance to be unsalable before a really measurable amount of peroxide had formed. Some free fatty acids had formed before this point was reached, but even so, the candies made with this fat were very stable up to 17 weeks. Antioxidants are, therefore, unnecessary with this type of fat.

We were especially interested in the results with butter because we had been told of the difficulties in keeping a fresh butter cream on the market the year round. Here antioxidants are of great importance. A butter cream with no antioxidant protection showed oxidative rancidity soon after the fourth week; whereas, when an effective antioxidant was added, the fat in the candy was stable up to 19 weeks insofar as oxidative rancidity was concerned. Unfortunately, the creams did show hydrolytic rancidity to a rather high degree shortly after the fourth

for

Goody, Goody—
Gumdrops!



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week. So, although antioxidants will protect butter creams against oxidative rancidity, they have no effect whatever in stopping free fatty acid formation. Some other means had to be found to protect the candy against this type of rancidity. We have had good results by the addition of 1-2% glycerol in delaying free fatty acid formation in butter creams.

Shortening made from animal fats gave good results in the candies in which it was used. The manufacturer had added an antioxidant, butylated hydroxyanisole, to his product and this gave excellent protection against oxidation. Some rancidity developed due to free fatty acids which would require protection; possibly by incorporation of 1 percent glycerol.

The work done in this Laboratory on candies made with hardened coconut oil has not yet reached a stage where results can be reported. Samples are in the storage ovens, but have not as yet been tested.

In the work described, the antioxidants which gave the best results were butylated hydroxyanisole, either alone or in one of the many combinations offered by the manufacturers; nordihydroguaiaretic acid (when this is used care must be taken to add it to the batch well below 200° F., as it is not stable at that temperature), and propyl gallate, often used in combination with other antioxidants. Certain compounds known as conidendrals gave excellent protection and appeared to be heat stable. The use of conidendrols as antioxidants was developed in research at the Southern Regional Research Laboratory. The yeasts, both brewers and primary, show antioxidant properties when used in amounts of 2-3%. Rather extensive work was done with yeasts in creams and fudges. The yeast was perhaps more successful in the latter in that it did not alter the flavor of the candy appreciably. Three per cent can be tolerated nicely and in many cases is not detected at all.

Conclusions

To sum up, hardened vegetable shortenings do not need stabilizers. The shelf-life of butter candies is measurably lengthened with both antioxidants and something to prevent free fatty acid formation. Animal fats need both types of protection, but the manufacturer has usually already added the antioxidant.

It could be argued that the best fat to use is vegetable shortening, but one must consider other things besides stability; such as, the taste and the price. If vegetable fats are high in price, good animal fats, if protected, will serve as well. In the case of butter, the flavor alone makes it worth using in spite of the price and the need to stabilize it.

ANTIOXIDANTS--Practical Aspects

HARRY E. WHITMORE
Universal Oil Products Company

THE antioxidants that are being employed at the present time or have been employed in the past by candy manufacturers are:

1. Oat flour
2. NDGA
3. Propyl gallate
4. Butyl hydroxyanisole
5. A synergistic mixture of butyl hydroxyanisole, propyl gallate and citric acid.

The opinions expressed as to the advantages and disadvantages of the above antioxidants are my own and should be considered as such.

Properties of Antioxidants

The antioxidant properties of oat flour are mild indeed. Oat flour acts more as an emulsifying agent—similar to the effect experienced when employing lecithin —than an antioxidant.

NDGA is an effective antioxidant, although it is not too fat soluble. It is a rather expensive product ($36 per pound).

Propyl gallate is considerably more fat soluble than NDGA and costs approximately $4 per pound. It is effective in edible fats and oils, but when exposed to high temperatures for extended periods of time its antioxidant effectiveness is rapidly lost.

An important disadvantage of NDGA and propyl gallate was presented in an article by George T. Carlin in the August, 1951, issue of Transactions, American Association of Cereal Chemists: "Certain precautionary measures are essential when selecting the proper antioxidant for the prepared mix trade. . . . Propyl gallate develops color reactions under certain conditions. It turns black if exposed simultaneously to iron rust and moisture. Both NDGA and propyl gallate produce green discolorations when mixed with egg yolk. As yet no color reaction difficulties have been noted when using BHA and citric acid. The problem of color control is important. Mix manufacturers who add their own antioxidants to liquid fats should be especially cautious, not only in the selection of the antioxidant, but also in removing sources of metallic contamination. The use of acidic synergists (citric acid and phosphoric acid) will aid in inhibiting color development."

Mention was made in the above quotation of butyl hydroxyanisole commonly referred to as BHA. This product is completely fat soluble, costs $4.85 per pound, presents no difficulty in regards to color as mentioned above in the quotation, no odor complaints have been experienced when the BHA is employed at the governmentally allowed concentration.

The synergistic mixture of butyl hydroxyanisole, propyl gallate and citric acid is dissolved in a propylene glycol solvent is the antioxidant composition called for in the Military Specifications for Candy and Chocolate Confections MIL-C-10928 (QMC) issued February 12, 1951. I personally have received no customer complaints

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when using this synergistic mixture for confectionery work. I have heard complaints, second hand, against this synergistic mixture.

In order to gain the desired protection against oxidative deterioration (rancidity) it is important to remember that the antioxidant and the candy must be agitated or stirred thoroughly to insure the formation of a homogeneous mixture. The antioxidant itself can be added to the substrate, or, in the case of butter confection, it is possible to request the supplier to add the antioxidant to the butter at the source of supply. When employing this method it is important to state on the purchase order that the butter is to be used for confectionery work. The disadvantage of purchasing in this manner is that costs are raised materially to cover the supplier's overhead and labor for the time required for incorporating an antioxidant in butter.

Use of Antioxidants

The ideal method, I believe, for adding the antioxidant to candy is to make a stock solution of antioxidant and flavor extract. By employing such a procedure it is possible to effect the addition of an antioxidant without added expense or additional steps in processing.

The problem resolves itself as to which of the antioxidants should be used for regular commercial production on the one hand and the Quartermaster Corps confectionery production on the other. The latter use is automatically taken care of by the specifications that state that a synergistic mixture of butyl hydroxyanisole, propyl gallate and citric acid in propylene glycol solvent is to be used. If a candy manufacturer is filling military orders, the easiest thing to do is to employ the same antioxidant mixture for regular commercial production.

I am on the horns of a dilemma as to the antioxidant I should recommend for the candy manufacturer that is not filling military orders but wants to employ an antioxidant for regular commercial products. I am reluctant to give an unreserved recommendation for the use of the synergistic mixture containing propyl gallate for regular production because of the possible color difficulties that can be encountered. I can, however, give an unreserved and definite personal recommendation that the butter type confection can be protected for the desired period of time by employing butyl hydroxyanisole alone. This chemical is completely fat soluble, no deleterious color difficulties will be experienced, and it is relatively inexpensive. The one disadvantage that I can think of, however, is that it is a solid chemical. Some users would rather employ a liquid product because of the ease in handling, although this disadvantage is counteracted when considering that the antioxidant can be incorporated with the flavor that is added.

MC Biography—Flavors & Antioxidents

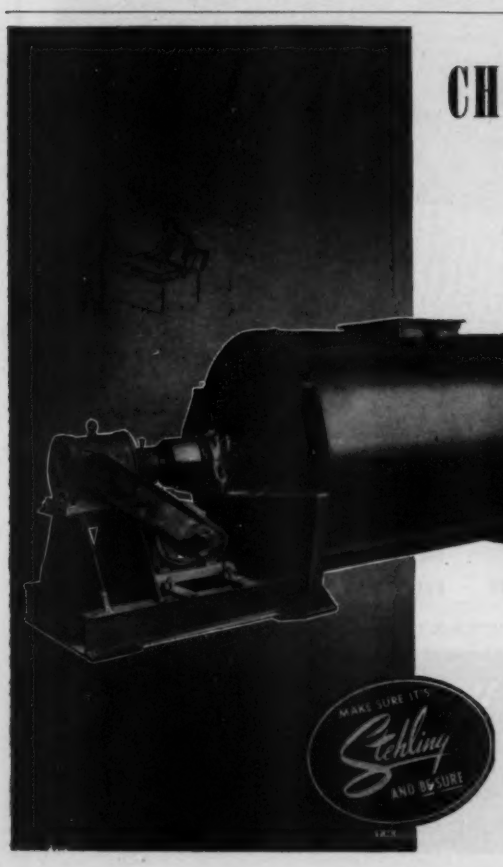
Cultured Butter-Flavor Products
R. S. Sweet, February 1948.

Distilled Cultured Dairy Products August 1947.

Norconidendrin: A New Antioxidant for Fats and Oils
W. G. Bickford, G. S. Fisher, Lillian Kaye, April 1949.

Antioxidants and Flavor Changes
Dr. Aladar Fonyo, June 1947.

Testing Effectiveness of Antioxidants January 1950.



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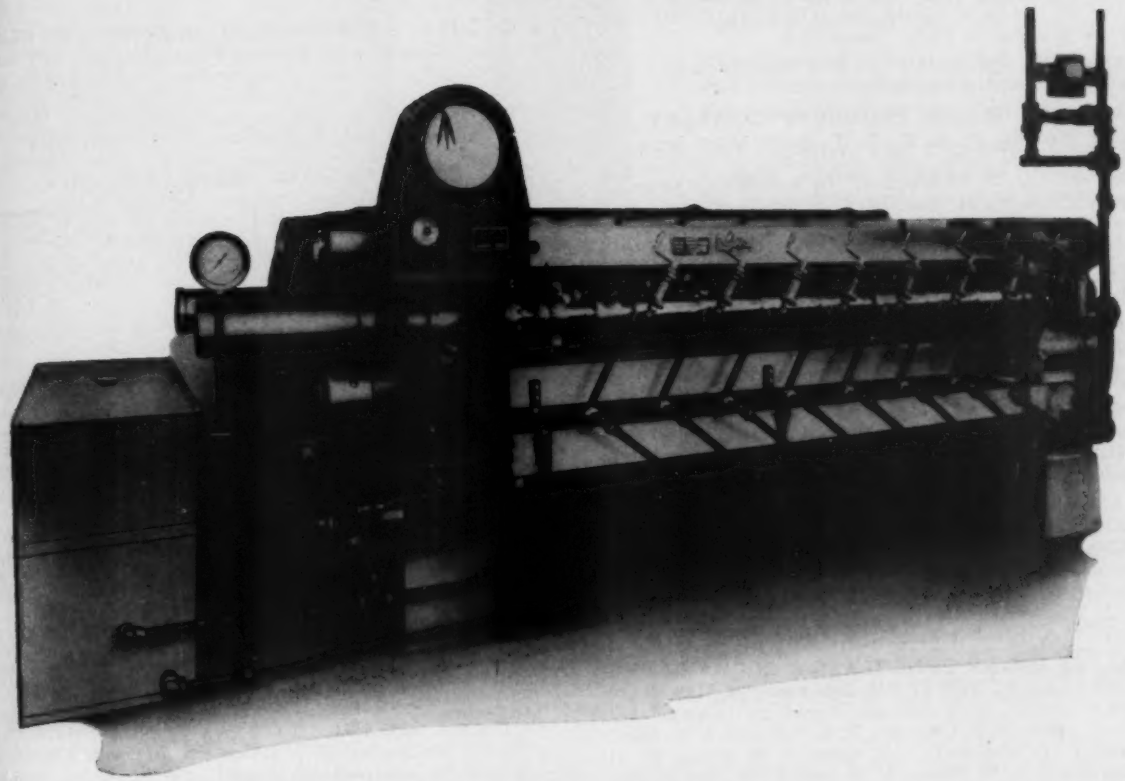

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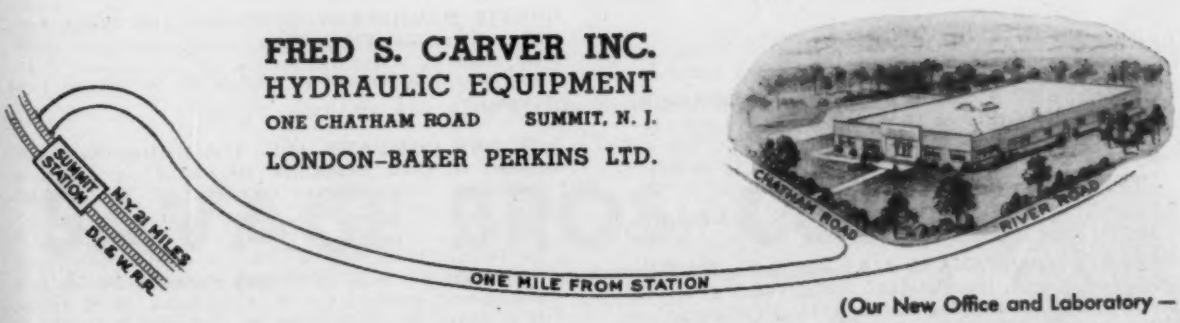

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DIRECTORY OF EXHIBITORS

Confectionery Industries Exposition During N.C.A. Convention—June 1-5 at the Conrad Hilton Hotel, Chicago, Illinois.

Note: The exhibitors listed in boldface type have further described their products in the Advertising Pages of THE MANUFACTURING CONFECTIONER.

THE ALUMINUM COOKING UTENSIL COMPANY, New Kensington, Penn. Booth 27-B

AMERICAN CHOCOLATE MOULD CO., INC., New York 13, N. Y. Booth 510

AMERICAN MAIZE PRODUCTS COMPANY, 100 East 42nd St., N. Y. 17, N. Y. Booth 509. Corn syrup unmixed, corn syrup solids, thin boiling starches, moulding starches, W-13 stabilizer. In attendance: James B. Melick, Charles H. Sanford, J. B. Brouwer, J. A. Murray, J. J. Fitzmorris, E. R. Sterbenc, R. L. Lloyd, W. H. Henderson.

AMSCO PACKAGING MACHINERY, INC., 31-31 48th Ave., Long Island City, N. Y. Booth 310

T. H. ANGERMEIER & CO., New York 1, N. Y. Booth 309

ANHEUSER-BUSCH, INC., St. Louis, Mo. Booth 501

ATLANTIC GELATIN, Division General Foods Corporation, Hill Street, Woburn, Mass. Booth 41. All types of gelatin. In attendance: J. H. Cohen, J. A. Dunn, Arthur Tole, Norman Vance, Jr., O. Walter Johnson.

FRANKLIN BAKER DIVISION, GENERAL FOODS CORPORATION, 15th & Bloomfield Sts., Hoboken, N. J. Booth 305. Coconut products other than oil. In attendance: Graham T. Brown, Harry P. Haldt, C. R. Spiller, G. W. McCullum, N. B. Kleinpeter, D. E. Miller, J. I. MacDonald, Alan J. Post, W. L. Bonney, Milton E. Barker, A. Frank Lilien, A. E. Olson, D. H. Macaulay.

WALTER BAKER CHOCOLATE & COCOA DIV. OF GENERAL FOODS CORP., Dorchester 24, Mass. Booth 506. Chocolate, cocoa and related products. In attendance: A. C. Quale, T. G. Churchill, R. G. Schnyer, A. B. Markhard, C. G. Cockinos, J. P. Gray, R. W. Gries, W. H. Kansteiner, L. E. Pierce, A. E. Fest, F. W. Pierce, C. R. Phoenix, H. W. Thomas.

BLANKE-BAER EXTRACT & PRESERVING CO., 3224-3234 South Kingshighway Bolvd., St. Louis 9, Mo. Booth 513. Dipping fruits for cordial chocolates, concentrated fruit purees, vanilla extracts, true fruit extracts, imitation flavors, fruit oils. In attendance: Dr. S. H. Baer, Miller Winston, A. H. Knese, C. R. Klofkorn, Harry L. Johnson, Paul A. Semrad.

BRAZIL NUT ASSOCIATION, New York, N. Y. Booth 203

BREWERS YEAST COUNCIL, INC., St. Louis, Mo. Booth 107

JABEZ BURNS & SONS, INC., 11th Ave. & 43rd St., N. Y. 36, N. Y. Booths 14-15. Cocoa roasters and cleaners. Representatives in U. S. of Baker Perkins, Ltd. and A. Savy JeanJean & Cie. In attendance: J. L. Robinson, H. S. Gargreaves.

BURRELL BELTING COMANY, 7501 N. St. Louis Ave., Skokie, Illinois. Booth 31

CARLE & MONTANARI S/A., Via Neera 39, Milan. Booth 6. Cocoa, chocolate and confectionery processing machinery and wrapping machines. In attendance: C. A. Mascherin.

FRED S. CARVER, INC., One Catham Road, Summit, New Jersey. Booth 13. Carver cocoa presses, Carver laboratory press. In attendance: Fred S. Carver and Wm. S. Carver.

CHOCOLATE SPRAYING CO., INC., 2035-39 W. Grand Ave., Chicago 12, Ill. Booth 406. Die pop machines, chain type plastic machines, sugar sanding machines, revolving pans, sizers, decorators, pumps, chocolate spraying systems, cooling conveyors, drums. In attendance: L. Latini, J. Latini, E. Latini, J. Sheffman, G. Holmberg.

CLINTON FOODS, INC., Clinton, Iowa. Booth 504. Products manufactured from corn. H. A. Bendixen, R. C. Wagner, A. C. Junge, Earl Cottral, M. J. Eddington, L. D. Buhrer, E. C. Alderson, L. H. Smith, R. C. Rau, W. F. Jackson, T. R. Miller, R. E. Mikkelsen, G. F. Heath, R. B. Young, W. P. Hoaster.

CONFECTION MACHINE SALES CO., 37 West Van Buren St., Chicago, Ill. Booth 25. Cream Depositor.

CORN PRODUCTS SALES COMPANY, 17 Battery Place, New York 4, N. Y. Booth 403. Puritose brand corn syrup, Buffalo brand special moulding corn starch, Globe brand corn syrup, Cerelose brand dextrose, Buffalo brand corn starch, Hudson River brand corn starch. In attendance: W. H. Gamble, E. W. Schmitt, J. E. Walz, R. R. Adam, M. M. Coe, H. V. P. Francis, F. E. Von Bargen, J. M. Krno, J. S. Gish, G. W. Matthews, G. H. Olsen, A. N. Anderson, G. A. McDonald, F. Johnson, W. S. Winter, M. D. Mullin, B. J. Downs, W. F. Fiedler, J. Kalyvas, J. Cotton, C. Jennewein.

S/A G. D. COSTRUZIONI MECCANICHE, Via Pomponia Io, Bologna. Booth 7. Hard candy and chocolate wrapping machines. In attendance: C. A. Mascherin.

COUNSEL MACHINE COMPANY, INC., 8 Hathaway Street, Wallington, N. J. Booth 505. Robo-lift Elevating Conveyor. In attendance: Justin C. Amato, Carl A. Frank, Robert F. Freebody.

CRYSTAL TUBE CORPORATION, 6625 W. Diversey Ave., Chicago 35, Ill. Booth 208. Converters of transparent packaging materials—cellophane, polyethylene, pliofilm and acetate. In attendance: Harold Goldring, Reynold Goodman, John Farrell, Wm. Holly, Lewis Egeler, Jack Silverman, Thos. Mulligan, Edw. Berry, Lester Ordman, James Hyland.

CURRIE MACHINERY COMPANY, 1150 Walsh Ave., Santa Clara, Cal. Booth 44. Automatic starch tray stackers, automatic starch tray feeders, high speed candy cleaners. In attendance: D. W. Currie, H. W. Currie, Fred Conway.

J. H. DAY COMPANY, INC., 1144 Harison Ave., Cincinnati 22, Ohio. Booth 210. Mixers, sifters, conveying equipment, roller mills. In attendance: A. W. Lockhart, P. V. Connell, J. L. Dietz; Chester A. Dones.

THE DOBECKMUN COMPANY, P. O. Box 6417, Cleveland, Ohio. Booth 507. Packaging materials of films, foils and papers. In attendance: R. A. Hickman, M. E. Shank, R. S. Jones, W. N. Wilhelm, W. J. Bader, R. Smith, R. Schultz.

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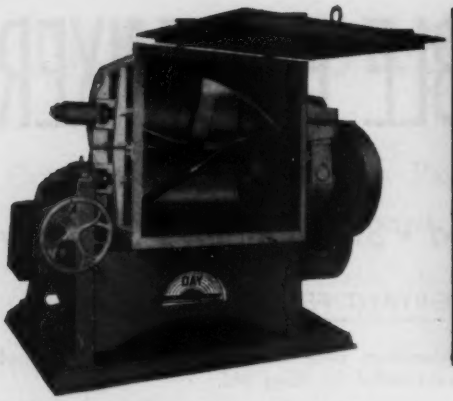

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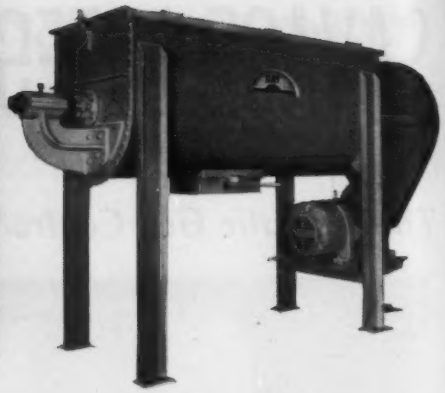

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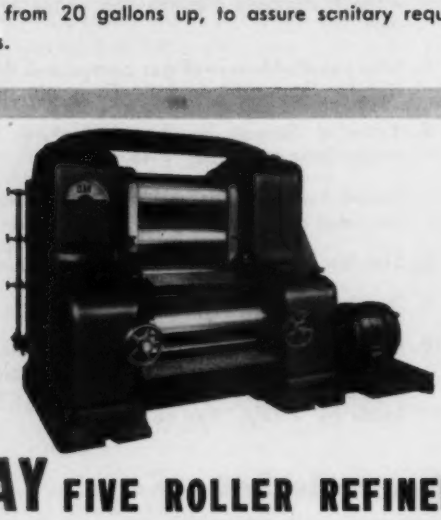

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E. I. DU PONT DE NEMOURS & COMPANY INC., Film Dept., Wilmington, Dela. Booth 410

DURKEE FAMOUS FOODS, DIVISION OF GLIDDEN COMPANY, Cleveland, Ohio. Booth 21.

FOOD MATERIALS CORPORATION, 2521 W. 48th St., Chicago 32, Ill. Booth 308. Vanillas, flavoring extracts, and colors. In attendance: E. E. Feight, P. T. Storr, H. A. Ackermann, R. E. Doherty, E. W. Jeffress, E. N. Heinz, Jr., G. F. Reid, R. W. Koch.

HARRY L. FRIEND COMPANY, Boston, Mass. Booth 45 ?

R. E. FUNSTEN CO., 1515 Delmar Blvd., St. Louis 3, Mo. Booth 22. Shelled pecans and black walnuts. In attendance: L. T. Schwieder, J. R. Hanna, H. L. King, P. A. Nobel, K. J. Shaw.

GORDON CARTONS, INC., 1629 Warner St., Baltimore, Maryland. Booth 42. Cellophane window and folding cartons of all types. In attendance: Samuel Gordon, Arnold Miller, Charles B. Debuskey.

J. W. GREER COMPANY, 119 Windsor St., Cambridge, Mass. Booths 404-405. Coating equipment—tunnels, multitier coolers, melting and tempering kettles, turntables, chocolate moulding plants, chocolate handling systems, and cream despositors. In attendance: Don Greer, Fred Greer, Roderick Grace, Charles Becker, George Dolber, Walter Salter, Willard Wheadon, Thomas Spooner, Richard Watson, Richard Biggs.

GROEN MFG. CO., 4535 Armitage Ave., Chicago 39, Ill. Booth 503. Stainless steel steam jacketed kettles, agitator kettles, revolving pans, vacuum pans, tilting kettles, mixers, stainless steel tanks. In attendance: Fred H. Groen, Fred H. Groen, Jr., Elmer Barth, Joe Corcoran, Jim Clegg, J. Dunn, Jim Worley.

GUNTHER PRODUCTS, INC., 600 E. Main St., Galesburgh, Ill. Booth 40. Whipping agents. J. K. Gunther and R. C. Gunther.

IRA L. HENRY COMPANY, Watertown, Wis. Booth 36

HOOTON CHOCOLATE COMPANY, 339-361 N. Fifth St., Newark 7, N. J. Booth 8. Chocolate coatings, chocolate liquors, cocoa powders. In attendance: G. B. Dodd, E. J. Teal, L. S. Fiscus, Frank J. Wolf, Jr., Roger C. Hubbard.

THE HUBINGER COMPANY, 601 Main St., Keokuk, Iowa. Booth 3. OK corn syrup unmixed, OK corn starches, OK Dri-Sweet (dried corn syrup). In attendance: R. S. Fisher, R. L. Krueger, A. M. Robinson, G. R. Underwood, H. S. Brightman, J. T. Flahiff, G. W. Hines, C. H. Lawrence, D. L. Tiger, J. T. Wallenbrock.

A. HUHN MANUFACTURING CO., 3915 Hiawatha Ave., Minneapolis, Minn. Booth 38. Starch dryers and coolers. In attendance: Mr. & Mrs. Alex G. Huhn, L. F. Maday, Chas. Whitmore.

I. D. COMPANY, FANCY CONTAINER DIVISION, New York, N. Y. Booth 25

JIFFY MANUFACTURING COMPANY, Hillside, N. J. Booth 307

A. KLEIN & CO., INC., 113-119 West 17th St., New York 11, N. Y. Booth 26. Fancy containers. In attendance: Joseph Ehrenfeld, William Michaelis

H. KOHNSTAMM & Co., Inc., 89 Park Place, New York 7, N. Y. Booth 207

J. M. LEHMANN COMPANY, INC., 550 New York Ave., Lyndhurst, N. J. Booth 24. Chocolate Refiners 5 & 3 Roll Sight-O-Matics, cocoa liquor mills, mixers, tempering machines, storage and tempering kettles, conches, emulsifiers, cracker and fanner, specialty items. In attendance: E. E. Mueser, C. B. Hoffman, J. M. Sarlat, C. Dittmann.

LYNCH CORPORATION, Packaging Machine Division, 3600 Summit St., Toledo 1, Ohio. Booth 407. Wrap-O-Matic wrapping machines. In attendance: R. L. Sears, M. V. Girkins, R. E. Taggart, B. D. Berk, F. G. Lenhart, R. H. Werbe, R. R. Seibel, M. J. Czarniecki, John A. Leslie, O. Sandberg.

THE MANUFACTURING CONFECTIONER PUBLISHING COMPANY, 8 S. Clinton Street, Chicago 6, Ill. Booth 30. Publications, books, directories and service. In attendance: Mrs. Prudence Allured, Wesley H. Childs, James Allured, J. M. Mercier, Stanley Allured, Mrs. Alice Burnham, Allen Allured.

MERRILL LYNCH, PIERCE, FENNER & BEANE, 70 Pine St., New York N. Y. Booth 10. Brokers Commodity futures. In attendance: Malcolm Forbes, R. R. Weihe, R. L. Stevenson.

MILLER WRAPPING & SEALING MACHINE CO., 18 South Clinton St., Chicago 6, Ill. (With Amsco Packaging Machinery, Inc., Long Island City, N. Y. and Simplex Packaging Machinery, Inc., Oakland, Cal.) Booth 310. Corley-Miller Model MPS Wrapping Machine, Simplex High Speed Bag Makers, Amsco High Speed Rotary Bag Sealing Machines, Amsco Automatic Bag Labeling and Sealing Machine, Whiz-Packer automatic fillers. In attendance: M. H. Corley, J. P. Corley, R. H. Freeman, P. G. Freeman, C. W. Montgomery, F. J. Kocarek, M. J. Hagberg, F. J. Faletti, Ed Messmer, John Sylvester, M. W. Smith, Rene Gaubert.

MILPRINT, INC., 4200 N. Holton St., Milwaukee, Wisc. Booth 409. Candy bar wraps, bags, box wrappers, advertising displays, cartons. In attendance: William Heller, Sr., L. R. Zimmerman, John Kettlewell, Roy Hanson, Bert Hefter, James K. Heller, Hugo Heller.

R. G. MOENCH & CO. INC., New York, N. Y. Booth 202

MOTOMCO, INCORPORATED, 10 Murray St., New York 7, N. Y. Booth 202. Warfarin bait station for permanent rodent protection. In attendance: Warren H. Dolben.

MURNANE PAPER COMPANY, 1510 N. Kostner Ave., Chicago 51, Ill. Booth 29. "Lint-free" H. T. non-stick treated base cards, boats, trays, dividers, partitions. In attendance: J. H. Murnane, F. J. Murnane, Hobie Murnane, L. E. Holloway, F. H. Keegan, G. D. Kells.

NATIONAL EQUIPMENT CORP., 153 Crosby St., N. Y. 12, N. Y. Booth 32-33-34. Machinery. In attendance: William H. Kopp, Joseph Greenberg, Herman Greenberg, George S. Perkins, Max M. Guggenheim, Charles Balin.

NIAGARA PLASTIC MOLDS, INC., Buffalo, N. Y. Booth 11

THE NULOMOLINE DIVISION, AMERICAN MOLASSES COMPANY, 120 Wall Street, New York 5, N. Y. Booth 401. Nulomoline, Convertit, Grandma's Old Fashioned Molasses and other grades. In attendance: Karl Fromm, R. J. Sasserman, Jr., Fred Janssen, Frank Trager, Bert Minton, Jas. A. King.

THE E. T. OAKES CORPORATION, Commack Road, Islip, Long Island, N. Y. Booth 16. Oakes continuous automatic mixer. In attendance: E. Thomas Oakes, vice-president, Nicholas A. Willcox, Engineering Dept.

OLIN CELLOPHANE DIVISION, Ecusta Paper Corporation. Booth 46

ONEIDA PAPER PRODUCTS, INC., Clifton, N. J. Booth 502

PACKAGE MACHINERY COMPANY, Springfield, Mass. Booth 301. Hansella Production line—center filler, batch former, 4-step sizer, Super Rostoplast and 3-way cooler, Forgrove Model 22-B hard candy wrapping machine. In attendance: Roe Clark, Tom Miller, Charles Palmer, Harold Mosedale, Joe Kelly, Ed Westervelt, J. R. Phin, Fred Todt, Albert Henkel, Stanley Hargreaves.

PENICK & FORD LTD., INC., 420 Lexington Ave., N. Y. 17, N. Y. Booth 2. Penford corn syrups, Douglas confectioner's moulding starches, Douglas confectioner's thin boiling starches. In attendance: D. P. O'Connor, H. A. Harvey, F. J. McCrosson, W. J. Brown, John Kooreman, Duke Vance, O. W. Johnson, Arthur Brooks, Don Cahoon.

ROSS & ROWE, INC., 50 Broadway, N. Y. 4, N. Y. Booth 1. Lecithin, Fries flavors, Platco milk and cream products. In attendance: W. F. Schlesinger, J. E. Lynch, O. M. Stout, H. R. Smith.

ROBERT E. SAVAGE COMPANY, 1901 Clybourn Ave., Chicago 14, Ill. Booth 104. Chocolate Melting and tempering units, beating equipment, stainless steel dipping tables, stainless steel fabricating sanding equipment, rebuilding and repairing. In attendance: Robert E. Savage, Mrs. M. S. Savage, N. H. Savage, O. E. Segrin, Mrs. A. M. Brockmann, Mr. Scherring.

SAVAGE BROS. CO., 2638 Gladys Ave., Chicago 12, Ill. Booth 206. Fire mixers, copper and stainless steel steam jacketed kettles and mixers, atmospheric and forced draft gas furnaces, cooling slabs, marshmallow beaters, cutting machines for hard candy, caramel and nougat sizing machines, cream vacuum cooler, chocolate pump, revolving pans, chocolate mixers. In attendance: M. A. Savage, Richard J. Savage, M. J. Linden, W. P. Halpin, R. W. Emerson.

SCANDIA MANUFACTURING COMPANY, 500 Belleville Turnpike, North Arlington, N. J. Booth 17. Wrapping machines. In attendance: W. B. Bronander, Jr., Herbert H. Beams, Edwin N. Brooks.

F. J. SCHLEICHER PAPER BOX COMPANY, St. Louis, Mo. Booth 303

SIMPLEX PACKAGING MACHINERY, INC., 534 23rd Ave., Oakland, Cal. Booth 310.

SOUTHERN PECAN SHELLING CO., San Antonio, Texas. Booth 27-A

A. E. STALEY MANUFACTURING CO., Decatur, Ill. Booth 304. Corn syrups regular (C.S.U.), intermediate and Sweetose, Sta-Sol lecithin, regular and fluid type starches, moulding and thin boiling. In attendance: L. S. Roehm, I. F. Wieland, R. L. Nagle, R. E. Harroun; R. L. Schuerman, H. J. Reavis, L. H. York, G. H. Batchelder, O. D. Sutter, E. H. Schrader, H. Volle, H. Roche, F. H. Brock, J. Hurley.

CHARLES H. STEHLING CO., 1303 N. 4th St., Milwaukee 12, Wisc. Booth 508

STEINHARDTER & NORDLINGER, New York, N. Y. Booth 302

SUNKIST GROWERS (formerly California Fruit Growers Exchange), 616 East Grove, Ontario, Cal. Booth 306. Pectin, citric acid, essential oils of orange, lemon and grapefruit. In attendance: D. R. Thompson, L. C. Gallagher, T. F. Baker, E. L. Rhoads, C. E. Scovern.

SYLVANIA DIVISION, AMERICAN VISCOSE CORPORATION, 1617 Pennsylvania Blvd., Philadelphia 3, Pa. Booth 201. Cellophane. In attendance: H. A. Newman, Jr., W. J. Butler, A. J. Horgan, F. A. Morris, F. W. Spannagel, V. N. Winkler, W. B. Zemann

TRAVER CORPORATION, Chicago, Ill. Booth 512.

TRIANGLE PACKAGE MACHINERY CO., 6655 W. Diversey Ave., Chicago 35, Ill. Booth 108. Semi-automatic and fully automatic net weighing and filling machinery. In attendance: Walter P. Muskat, R. W. Amos, Robyn Schrader, Robert L. Muskat.

C. E. TWOMBLY COMPANY, Medford, Mass. Booth 511

UNION CONFECTIONERY MACHINERY CO., INC., New York, N. Y. Booth 32

UNION SALES CORPORATION, Columbus, Indiana. Booth 204. Products from corn. In attendance: J. I. Miller, E. B. Pulse, G. W. Anderson, D. Foster, J. Amodei, C. F. Grathen, E. C. Jaross, K. Murdock, R. C. Wilhelm, A. J. Snapp, H. W. Curry.

VACUUM CANDY MACHINERY CO. (and Racine Confectioners' Machinery Co.), 15 Park Row, N. Y. 38, N. Y. Booths 101-102-4-5-6. Steam and gas vacuum cookers, sucker machines, depositors Jr. & Sr. models, automatic stick candy machines. In attendance: Claude J. Covert, Joseph L. Raffetto, W. F. Moore, R. S. Hislop, G. B. Hislop, J. Green, H. Davis, T. Merckens.

VOSS BELTING & SPECIALTY COMPANY, 5645 N. Ravenswood, Chicago, Ill. Booth 106. Hi-Gloss enrober belting, endless feed and bottomer belts, caramel cutting boards, batch roller belts, sanitary treated conveyor belts. In attendance: Joseph H. Voss, Sr., Joseph H. Voss, Jr., Robert J. Voss, Frank A. Gusinde, Warren Frandsen, Edward Kordt, Al Horka, A. T. Stevens, Mathew Hoff, Lee Grossart.

WARFIELD COMPANY, Chicago, Ill. Booth 37.

JOHN WERNER & SONS, INC., 713-29 Lake Ave., Rochester 13, N. Y. Booth 402. Confectionery machinery. In attendance: Theodore Werner and Charles Werner.

T. C. WEYGANDT COMPANY, 165 Duane St., New York 13, N. Y. Booth 209. Chocolate moulds, hollow moulding machinery, automatic tempering machines. In attendance: Max Kaderli, Edith B. Kaderli, Wilhelm Rasch.

WHITE STOKES COMPANY, INC., 3615 Jasper Place, Chicago, Ill. Booth 9. Basic materials for confectionery, bakery, and ice cream trades. In attendance: J. E. Stokes, J. W. Lawrence, E. G. Buchanan, Chas. A. Dillon, William A. Alexander.

WHITSON PRODUCTS, DIVISION OF THE BORDEN COMPANY, New York, N. Y. Booth 2

WRAP-ADE MACHINE CO., INC., 83 Valley St., Belleville 9, N. J. Booth 28. Lollypop wrapping machines. In attendance: A. M. Powell, Jr., W. L. McCambridge.

Trade Press

THE MANUFACTURING CONFECTIONER, 9 S. Clinton St., Chicago 6, Ill. Booth 30

CANDY INDUSTRY, New York, N. Y. Booth 408

THE CONFECTIONER, Milwaukee, Wis. Booth A

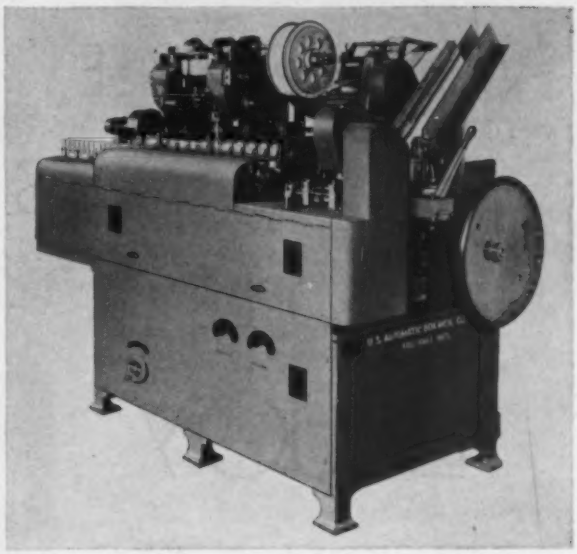
CONFECTIONERY ICE CREAM WORLD, New York, N. Y. Booth 39

CONFECTIONERS JOURNAL, Philadelphia 6, Penna. Booth 103

INTERNATIONAL CONFECTIONER, INC., New York, N. Y. Booth 105

Eliminate CHANGE-OVER TIME

The Versatile C-10-CC Candy Filler Packs all these types of candy without adjustment



Candy manufacturers and distributors who package a wide variety of hard, semisoft or easily marred candies will find the Model C-10-CC Volumetric Filler ideal for their multiple requirements. It will handle all their products without adjustment when package size and volume are kept uniform. The Model C-10-CC automatically extracts the flat carton, opens it, tucks bottom flaps, cuts, forms and inserts liner into the carton and then volume fills the correct amount of candy. When desired, the liner may be omitted. Final operation on the C-10-CC folds the top of the liner closed and tucks and closes the top flaps of the carton. An automatic check weigher rejects any underweight packages. Only one operator is required to supervise the machine, and speeds of 60 filled cartons per minute are available.

Check the many varieties of candy packages shown and you'll see how the C-10-CC can fill your packaging problem. Write for complete details today.

US NET & GROSS WEIGHING ★ PACKAGE FORMING & FILLING ★ CARTON SEALING, LINING, WRAPPING ★ BOX MAKING

AUTOMATIC BOX MACHINERY CO., INC.

Owning and Operating NATIONAL PACKAGING MACHINERY CO. ★ CARTONING MACHINERY CORP.

200 ARBORETUM ROAD, ROSLINDALE, BOSTON 31, MASS.

BRANCH OFFICES: NEW YORK ★ CLEVELAND ★ CHICAGO

WHEN
YOU
MAKE THOSE
GOOD CANDIES
PEOPLE
ENJOY
EVERY DAY
USE
CLINTON
CORN SYRUP
CORN STARCH
AND DEXTROSE
CLINTON FOODS INC
CLINTON IOWA

George R. Frederick
President, Loft Corp.
ARC President 1951-52

ARC Convenes in Chicago

MEETING for their 32nd Annual Convention, the Associated Retail Confectioners of the United States will convene at the Drake Hotel, Chicago, for three highly interesting and instructive days.

Demand from its membership for ways and means of improving their manufacturing processes aimed toward economy in production without sacrifice of quality, has inspired the officers and committees of ARC to plan a most informative program.

The "House of Friendship" get-together on Sunday night, June 1, will, as usual, get the delegates better acquainted with old friends, and give them the opportunity of meeting newcomers.

Monday and Tuesday mornings, June 2 and 3, will be devoted to the so-called small operation—Monday to Merchandising, Tuesday to Production. The Merchandising Seminar on Monday morning will be conducted by Dorothy and Sydney Bogg; and Ralph Hopkin will preside on Tuesday morning at the Production Seminar. Both seminars will be held in the Gold Coast Room of the Drake, following earlier breakfast meetings.

The candy-making session to be held Monday afternoon will be under the expert guidance of Joe Oliver, who has two surprise innovations to present, both of which, we are promised are unique and practical.

The latest data on the availability of materials and supplies will be presented by Harry Simpson, assisted by several experts in the allied trades.

Many perplexing merchandising problems are expected to be ironed out on Tuesday afternoon, when Dave Faurer and Ada Geary cover the all-important subject of getting candy across the counter to the consuming public in ever-increasing quantities.

The Candy Clinic is scheduled for Wednesday, with full participation expected from every confectioner represented at the convention. Time has been allotted during the morning for setting up displays, and from 1:30 to 6:00 p.m., after a preview from 11:30 to 12:00 noon, there will be held the clinical displays and analyses. The session will close with a take-home sample period. The Clinic is under the direction of Ruth Meinsen and Clarence Drescher.

Luncheon meetings will be held on Monday, Tuesday and Wednesday, and the convention will be highlighted with a cocktail party and dinner dance on Tuesday evening. Music and entertainment have been provided to accompany the banquet.

The ARC chairmen are expecting a record crowd to attend this year's meetings, and have done a fine job in their planning to see that everyone that attends has a worthwhile visit.

Lyons, France

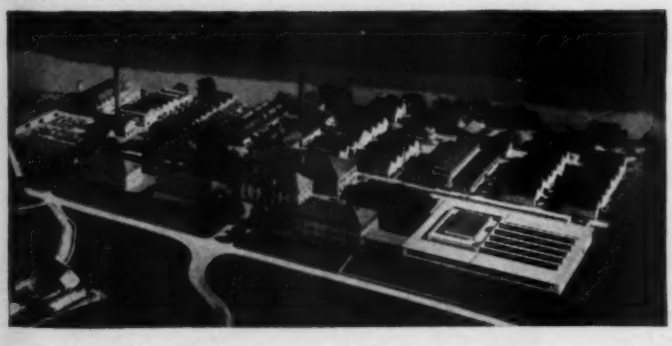
world renowned for its aromatic materials,

the house of

GIVAUDAN

Delawanna, N. J., U. S. A.

Vernier-Geneva, Switzerland



has developed an outstanding line of flavoring products which offer the delicately balanced quality of the natural aromas plus purity and uniformity obtainable only through rigidly controlled production methods.

Givaudan Flavors Inc.

330 West 42nd St. • New York 18, N. Y.

Confectioners' Packages Win Prizes In Set-up Box Competition

THE National Paper Box Manufacturers' Association announced the awards in their 1952 competition at the 34th Annual Meeting held May 11-14 at the Drake Hotel in Chicago.

More than 1200 set-up paper boxes were entered. Judging was based on twenty-two end use classifications in addition to best artisitic design, superiority of construction and best display box. The panel of judges consisted of Magnus Gaukerud, Container Corporation of America, Chicago; Walter M. Hilliard (retired), formerly with Dennison Manufacturing Company, Framingham, Massachusetts; Gustav Jensen, Industrial Designer, New York; Howard Minnich, Manager, Advertising and Sales Promotion, U. S. Printing and Lithographing Company, Cincinnati; Robert S. Dunlop, Dominion Paper Box Company, Toronto, Canada; Martin Ullman, Industrial Designer, New York; and Frederick M. Yost, Director of Design, John Wanamaker's, Philadelphia.

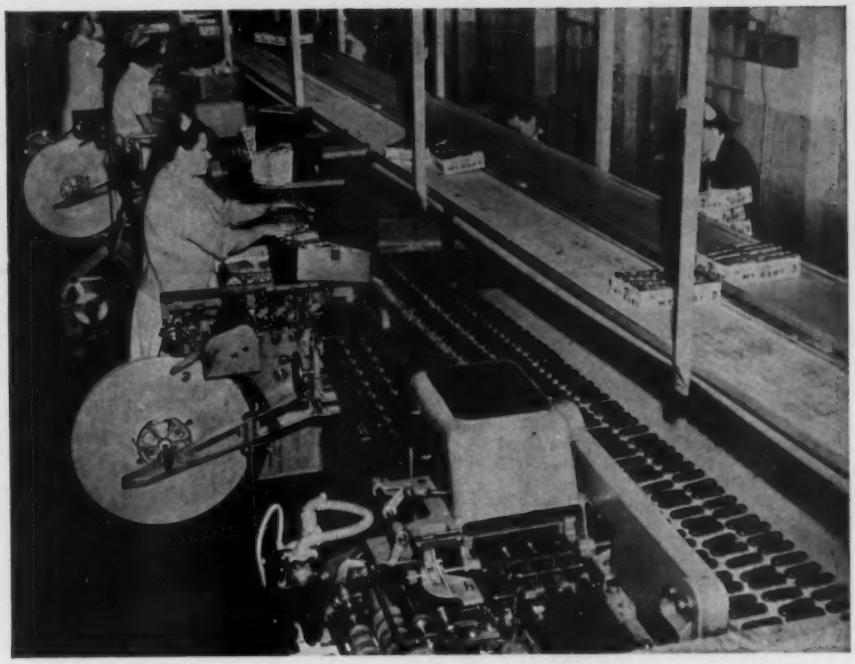
Among the winning boxes, first award in confections was given to the Congress Paper Box Co., Inc., Chicago, for family of packages manufactured for Martha Washington Candies and designed for the agency retail counter, directed toward impulse buying. Company identification and graphical representation of the contents appear on each cover.

Second award in confections and honorable mention in best artistic design class was given the Congress Paper Box Co. for the three-tier box manufactured for Marshall Field & Company. Each tier lifts off to disclose candy in tier beneath. The box was designed by John Moss, Art Director for Field's.

Honorable mention in confections was given to San Jose Paper Candy Co. for the box manufactured for Chase Candy Company for their Mint Cordials. Printed cover wraps were produced and designed by Murison Label Company and show picture of product with clear brand identification.

The Variety of Sweets box manufactured by W. H. Albrecht Company, Philadelphia for Gimbel Brothers, New York, received honorable mention in confections. The six cellophaned partitions within the box hold a variety of confections and protect them in transit. Sturdy lid bears immediate brand identification together with design which is appropriate to contents.

Utah Paper Box Company, Salt Lake City, manufactured the Party Mix Box for Sweet Candy Company, which also received honorable mention. The die cut lid enables consumer to view contents at first hand. Brand identification is clear and cover design is appropriate to package.



Battery of Model DF-1 machines in plant of DERAN CONFECTIONERY CO. Cambridge, Mass.

Profitable Production of Bar Goods

calls for fast, low cost wrapping

In these days of high costs, it certainly requires the utmost efficiency to produce a quality bar at a popular selling price. Our Model DF-1 machine, with a speed of 140 bars a minute, will help you do it—as proven by its outstanding performance in many leading candy plants.

The DF-1 produces a smooth, angular wrap over the most irregular-shaped bar. Printed design is accurately registered, insuring a neat, attractive appearance on candy stands. And the "tuck-in" fold formed by the DF-1 makes a perfect wrap for vending machines. End-folds are tucked under the bar or card and held in place by the bottom seam—no loose ends to cause jams. Practically any type of wrapping material can be used, including THERMOPLASTIC SPOT COATED MATERIALS.

The machine can be equipped with our special feed that permits the use of card stock in low-cost roll form.

Both card feed and wrapping machine are easily adjustable for different sizes.

Write for complete information

NEW YORK CHICAGO BOSTON CLEVELAND ATLANTA
DALLAS DENVER LOS ANGELES SAN FRANCISCO SEATTLE
VANCOUVER, WASH. TORONTO MEXICO, D.F.

See us at the Confectionery Show • Booth 301

PACKAGE MACHINERY COMPANY
WRAPPING DIVISION
SPRINGFIELD, MASSACHUSETTS

National Advertising

The following National Advertising listings have been compiled and arranged as an informative service to the confectionery industry.

Information on magazine advertising expenditures is printed by The MANUFACTURING CONFECTIONER with the special permission of Publishers Information Bureau.

The radio advertising table is compiled and arranged by the staff of The MANUFACTURING CONFECTIONER from network and private sources.

These listings have been a regular feature of The MANUFACTURING CONFECTIONER publications since May, 1951.

Magazines — MARCH

Advertiser	Magazines		March Expenditure	Total 1952	Total 1951
Fred W. Amend Co.	Last advertised in January, 1951		$	$	$ 1,195
Barracini Candy Co.	Last advertised in April, 1951				3,170
Beech-Nut Packing Co. (Beech Nut Gum)	Boy's Life—1,360; Family Circle Magazine—6,610	Total	7,970	44,800	112,555
Blumenthal Bros.	See April, 1952 issue			1,250	2,605
Blum's Confectionery	New Yorker Magazine		410	1,066	3,406
E. J. Brach & Sons	Last advertised in Nov., 1951				124,897
Brown & Haley Candy Co. (Almond Roca)	See March, 1952, issue				21,750
Candy Pack, Inc. (Swedish Mints)	Last advertised in August, 1951				192
The Cracker Jack Co. (Campfire & Angelus Marshmallows)	Saturday Evening Post		10,585	21,000	57,689
Cresca Co., Inc. (Lindt Candy)	New Yorker—294; New York Times Magazine—193	Total	587	587	7,575
Cresca Co., Inc. (Pascall Candy)	See May, 1952, issue			3,055	3,981
Crosse & Blackwell, Inc. (Kieller's Candy)	New Yorker		394	394	8,417
Curtis Candy Co.	Better Living—5,475; Everywoman's Magazine—5,475; Scholastic Magazines—3,850	Total	14,800	29,600	113,308
DeMet's, Inc. (Turtles)	See March, 1952, issue				25,980
Flavour Candy Co.	See January, 1952, issue				455
Frank H. Fleer Corp. (Fleer's Bubble Gum)	Collier's—2,286; Life—5,440; Look—2,990; Saturday Evening Post—5,100	Total	15,816	40,265	72,720
John O. Gilbert Chocolate Co.	See May, 1952, issue			660	4,840
H. Hamstra & Co. (Droste Chocolates)	New Yorker		300	578	2,411
Henry Heide, Inc.	Life—5,440; Saturday Evening Post—1,700	Total	7,140	15,305	57,300
The Kroger Co.	See January, 1952, issue				2,460
Liberty Orchards Co. (Aplets, Cotlets)	See February, 1952, issue				499
Life Saver Corp.	Life—28,900; Look—15,290; Saturday Evening Post—37,620	Total	81,810	203,810	465,565
Mars, Inc.	Collier's—14,200; Look—10,160	Total	24,360	51,780	178,330
National Dairy Products Corp. (Kraft Caramels)	Last advertisement in June, 1951				61,300
New England Confectionery Co. (Necco Candies)	Look			8,835	155,980
Pangburn Co.	Esquire—650; Holiday—585; Look—1,495	Total	2,730	8,190	6,420
Peter Paul, Inc. (Mounds & Almond Joy Bars)	Better Living—4,752; Everywoman's Magazine—4,320; Family Circle Magazine—10,080; Woman's Day—10,500	Total	29,652	29,652	272,217
Planters Nut & Chocolate Co.	Life—26,900; Saturday Evening Post—10,585; Scholastic Magazines—550	Total	38,035	41,875	170,398
Thomas D. Richardson Co.	See February, 1952, issue				67,130
Rockwood & Co. (Rockwood Wafers)	See May, 1952, issue			19,585	119,685
Safeway Stores, Inc. (Roxbury Candy)	See March, 1952, issue				11,700
Frank G. Shattuck (Schrafft's Chocolates)	Saturday Evening Post		10,585	21,170	77,330

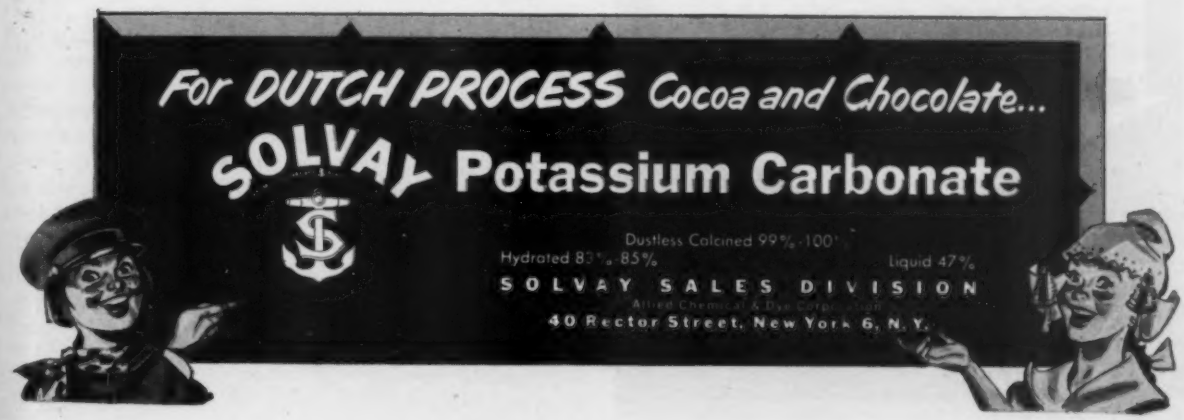
Sophie Mae Candy Corp.				
Family Circle Magazine—1,740; Good Housekeeping—1,438; Life—1,512; Saturday Evening Post—1,540; Woman's Day—1,870	**Total**	8,100	15,502	23,729
Russell Stover Candies				
See March, 1952, issue				9,625
Sweet Candy Co.				
Last advertised in March, 1951				700
Sweets Co. of America, Inc. (Tootsie Rolls)				
American Girl—470; Boy's Life—576	**Total**	1,046	1,046	43,659
Switzer's Licorice Co.				
American Magazine—944; Saturday Evening Post—1,232	**Total**	2,176	7,759	47,150
Vernell's Fine Candies, Inc.				
Life—2,016; McCall's Magazine—760; Saturday Evening Post—1,700	**Total**	4,476	8,780	2,485
James O. Welch Co. (Coconut bar & Mint Patties)				
Better Living—3,450; Good Housekeeping—851; Life—12,800	**Total**	17,101	63,308	164,934
Stephen F. Whitman & Sons, Inc.				
Saturday Evening Post—37,620		37,620	102,140	398,230
Wilbur-Suchard Chocolate Co., Inc.				
See March, 1952, issue				44,400
R. C. Williams & Co., Inc. (Tobler Candy)				
Gourmet—38; New Yorker—788; Sunset Magazine—385; Town & Country—138	**Total**	1,349	3,500	5,753
William Wrigley, Jr., Co.				
Better Living—3,860; Everywoman's Magazine—3,450; Family Circle Magazine—8,328; Parents' Magazine—3,850; Today's Woman—2,200; Woman's Day—8,476	**Total**	30,164	85,916	295,020
Zion Industries, Inc.				
Last advertised in March, 1951				105
Total Magazine Advertising Expenditure		$347,206	$831,408	$3,249,250

Radio and Television

APRIL

Sponsor	Network	No. of Stations	Time
Fred W. Amend Co.	ABC-TV	5	4 30-min. shows
American Chicle Co.	ABC	255	4 30-min. shows
		250	5 30-min. shows
		272	4 15-min. shows
	Mutual	527	4 5-min. shows
	NBC	183	4 10-min. shows
		182	4 10-min. shows
		186	4 10-min. shows
Gold Medal Candy Co.	NBC	WNBT (Local)	4 15-min. shows
Kraft Candy Co.	Mutual	536	13 15-min. shows*
		518	4 15-min. shows
M. & M., Ltd.	CBS-TV	41	4 30-min. shows
Mars, Inc.	ABC-TV	50	4 30-min. shows
	CBS	153	5 30-min. shows
	NBC-TV	42	9 15-min. shows*
Peter Paul, Inc.	CBS	14	13 10-min. newscasts
	NBC-TV	39	4 15-min. shows
Sweets Co. of America	ABC-TV	27	4 15-min. shows
Williamson Candy Co.	Mutual	524	2 30-min. shows
William Wrigley, Jr., Co.	CBS	179	4 30-min. shows
		186	5 30-min. shows
	CBS-TV	11	4 30-min. shows

*Program is co-sponsored



Holidays *are always here*

WHEN YOU PACK IN
TINS CREATED
by **EASTERN . . .**

Currier & Ives "Bow" and "Pine Cones"—"Orchids"—"Southern Charm"—"On the Plaza"—"Old Fashioned Basket"—"Plantation Romance"—"Joe Palooka Lunch Box"—"Back Home"—"England Street Scene" and "Swiss Flowers"

and topping all stock designs our
New **"Gold & Poinsettia"** Tin

EASTERN
MAKES PRIVATE DESIGNS TOO!

Outstanding and exclusive . . . especially suited to your product . . . round tins, square tins, oblong tins . . .

Our creative Art Department will submit color sketches upon your request. We can reproduce from our design or your color art work.

Our experienced sales organization covers the country and can give you complete and individual service, whether your order is large or small, to deliver *RESULTS!*

SAMPLES AND QUANTITY PRICES UPON REQUEST.

EASTERN CAN COMPANY
48 KEAP STREET
BROOKLYN 11, NEW YORK

Distribution • Sales • Advertising

• **Thinshell Candies, Inc.**, of Chicago have appointed the following brokers to handle the Thinshell line: W. W. McGraw, Mobile, Alabama, (Mississippi and Alabama), A. Morton Mosher, Dallas, Texas (Texas, Arkansas and Louisiana), C. J. Garland, Belmont, Massachusetts (Maine, Bermont, Massachusetts, Connecticut and Rhode Island. The state of Arizona has been added to the California and Nevada territory covered by J. W. Taylor.

• **Peter Paul, Inc.**, has declared a regular quarterly dividend of 50 cents per share payable June 10, to stockholders of record at the close of business May 9, 1952.

• **The Barton Company,** has completed arrangements to manufacture chocolate novelties and specialties in Israel for sale in its fifty-two shops in New York, Detroit and Newark. Stephen Klein, president, has returned from a recent trip to Tel Aviv where he made the announcement.

• **Wm. Wrigley, Jr., Co.** declared four regular monthly dividends of 25 cents each on the common stock, payable May 1, June 2, July 1, and August 1, to stock of record April 18, May 20, June 20, and July 18, respectively.

Earnings of the Company for the first quarter of 1952 amounted to $1.09 per share.

• **Beech-Nut Packing Co.** and subsidiaries report net earnings of 43 cents per share for the first quarter of 1952. This is a slight decline over the same period a year ago.

Ralph Foote, who has been advertising manager of the Beech-Nut Packing Company for 23 years, will retire July 1. He will continue, however, as an advertising consultant.

• **Fanny Farmer Candy Shops, Inc.** have recently opened 8 new shops and remodeled 12 others, according to a recent announcement made by John D. Hayes, President. Another shop is expected to be opened soon in New York City. Sales for the company during the first two months of this year were 13% of the same period in 1951.

• **Sweets Co. of America, Inc.** report net sales for the year 1951 of $9,050,500. Earnings for the year amounted to $1.88 per share.

(*Please turn to page* 87)

News of Associations

• **Victor A. Bonomo, Gold Medal Candy Co.,** speaking in acceptance of the presidency of the Association of Manufacturers of Confectionery and Chocolate of New York, stressed today's need for harmonious cooperation within the industry.

MR. BONOMO

"The strong forces in and out of our own Industry have created conditions that make it almost impossible for a manufacturer to go his way alone." Mr. Bonomo offered "open sessions for mutual consideration of basic problems which can be cured by free exchange of cooperative remedies."

He asked the group for support in association projects involving traffic, labor relations, insurance, and expansion plans which are contemplated.

Other officers elected included: A. H. Heide of Henry Heide, Inc., Vice President; H. Lustig, Secretary-Treasurer. The Executive Committee: C. R. Adelson, Delson Candy, Chairman; A. Baumgarten, Barricini Candies; I. L. Cook, Rockwood & Co.; J. C. Drury, Fanny Farmer; G. R. Frederick, Loft Candy Corp.; S. D. Fried, Korday Candies, Inc.; J. D. Hand, Sweets Company, C. F. Haug, Mason, Au & Magenheimer; C. L. Payne, Wallace & Company; A. Radutsky, Independent Halvah; C. E. Reid, Charms Company; I. C. Shaffer, Maillard Corp.; J. S. Swersey, Swersey's, Inc.; H. Tenzer, Barton's, Inc. H. L. Heide and H. L. Hoops were named honorary members of the Executive Committee.

• **National Candy Wholesalers' Association, Inc.** delegates heard the words "Here's How" many times during their 7th Annual Convention and Confectionery Exposition held May 18-21, at the Palmer House, Chicago.

Starting off on Sunday morning, May 18, with a trade press breakfast, and ending with the "Here's How" stage production and the annual ball, this year's convention and exposition was an outstanding one in every way.

Special honors were given to old-timers who had reached their seventieth birthdays, and in some cases had spent fifty or more years in the industry.

William H. Gove, Sales Promotional Manager, Minnesota Mining and Manufacturing Company,

The pre-eminent candy makers of the nation have tested "BURCO" Products and found that they are outstanding.

You, too, will find them reliable, economical producers of repeat business.

Outstanding formula using NU-KREME

We recommend that you try NU-KREME, the finest nougat cream on the market, for Whipped Cream Hand Rolls. We suggest the following formula:
Place in a kettle 30 lbs. of Sugar, 1 gallon of water and 1 teaspoon of Cream of Tartar. Cook to 244 degrees. Cream up cold with 8 lbs. of NU-KREME. Add Salt and Vanilla on beater while creaming. Hand roll and dip in Chocolate.

NU-KREME Grade A of all Nougat Creams.
CONFECTIONERS' PECTIN for cut slab jellies.
NU-MILK Whole Milk in Plastic form for Caramels and Fudges.
FRESH COCOANUT PASTE Ready to use for Chocolate or Bon Bon Centers.
PECTOLENE a Pectinized Invert Sugar Product.
CENTER-ROLL KREME for Soft-flowing Creams.
KREME-TEX for Creamy Fudge and Caramels.
DIPPING PIECES Molasses Honey-comb Chips, Peanut Butter Chips, Toasted Coconut Chips, Chocolate Center Chips, Almond Butter Sticks, Mint Pillows and Peanut Butter Pillows.
BURCO NOUGAT CREME The All Purpose Nougat Cream.
TOPPINGS Marshmallow, Butterscotch, Caramel and Chocolate Fudge.

Formula Book "RECIPES FOR BETTER CANDIES" sent with initial order

BURKE PRODUCTS CO. INC.
317 W. HUBBARD ST. CHICAGO 10, ILLINOIS

and one of the best in the selling business today, gave some mighty helpful hints to confectioners on how to "Serve and Sell" in today's market.

E. J. McCoy, President of NCWA, in the first afternoon session, told the delegates who were assembled how cooperative effort could aid the candy wholesaler in his dealings and selling activities.

One of the livelier panel discussions took place on Tuesday under the chairmanship of Robert K. Smith, Wesley A. Smith & Sons, Blue Island, Illinois, when the subject under fire was how to meet the problems of discrimination against candy in schools. And many interesting points were cleared by William A. Quinlan, Legal Counsel for NCWA, when he described the effects of governmental edicts and regulations on the candy wholesaler.

Other panel programs included discussions on "Our Job as Wholesalers," led by C. E. Morgan, Morgan Bros., Inc., Asheville, N. C., Chairman of the Committee on Wholesaler Functions; and "Here's How Through Local Cooperation" led by Frank McFadden, McFadden-Lambert, St. Paul, Minn., Chairman of the Extension Service Committee.

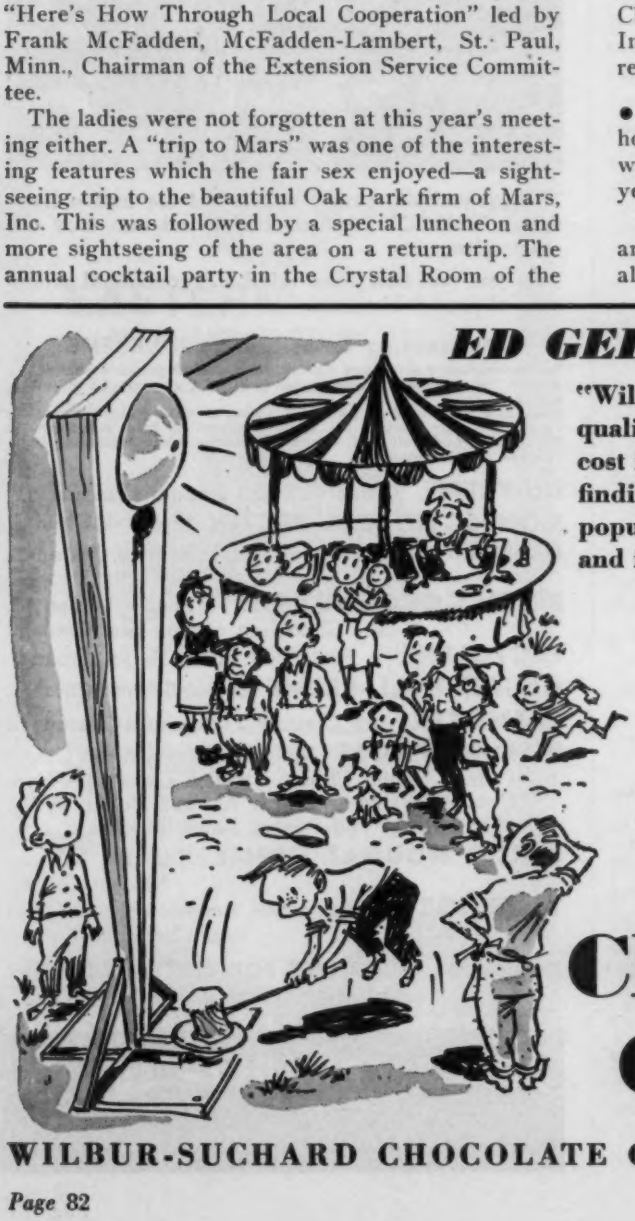
The ladies were not forgotten at this year's meeting either. A "trip to Mars" was one of the interesting features which the fair sex enjoyed—a sightseeing trip to the beautiful Oak Park firm of Mars, Inc. This was followed by a special luncheon and more sightseeing of the area on a return trip. The annual cocktail party in the Crystal Room of the Blackstone Hotel was sponsored by "Old Nick" and "Bit O'Honey", luncheon as guests of NCWA and corsages through the courtesy of Henry Heide, Inc., New York.

The convention came to an end Wednesday night, and from the enthusiastic praises of all the delegates attending, it would seem that this year's committee had chalked up another highly successful meeting.

• **The New England Manufacturing Confectioners Ass'n.**, has elected C. E. Worthen, Jr., Vice President of the James O. Welch Company, as president of the association for the coming year. Other officers elected were: Vice President, William O. Wallburg, Assistant Treasurer, W. F. Schrafft & Sons Corporation, Charlestown; Treasurer, Harry Gilson, F. B. Washburn Company, Brockton; Secretary, Sideny I. Kier, Royal Confectionery Co.; Directors: the officers and Richard W. Clare, New England Confectionery Co.; Richard D. Muzzy, Daggett Chocolate Company, and Carl E. Nelson, Brigham's, Inc. Walter R. Guild continues as Managing Director of the Association.

• **Flavoring Extract Manufacturers' Association** is holding their 43rd annual convention at the Edgewater Beach Hotel, Chicago, on May 25-28 this year.

The advance program which the committee on arrangements has prepared is better than ever, and all signs point to a most interesting four-day ses-



ED GEHRKE SAYS:

"Wilbur has a way of raising quality at the same time that cost is kept low. That's why I'm finding Wilbur Coatings so popular with my candy, bakery and ice cream customers."

There's a bundle of energy who is spreading more Wilbur coatings in the candy, ice cream and baking industries than there are lakes in Minnesota. Edward R. Gehrke had 19 years of food business experience when he opened his brokerage office a few years ago. If you're looking for better coatings without premium price, get in touch with Ed, 904 Builders Exchange, Minneapolis 2, Minn.

WILBUR CHOCOLATE COATINGS

WILBUR-SUCHARD CHOCOLATE COMPANY, INC. • LITITZ, PA.

SENSATIONAL NEW COFFEE IMITATION ANNOUNCED

Authentic Felton Reproduction, Felcafé, Revolutionizes Use of Coffee Flavor In Vast New Fields

As a result of several years of research and development, Felton Chemical Company chemists have produced a new coffee flavor that has revolutionized the use of coffee in many products. Candy, ice cream and baked goods manufacturers have long been aware of the handicaps presented by the lack of stability of coffee flavor concentrates, and it was this problem which Felton tackled first. Literally hundreds of new chemicals were isolated in the search for proper ingredients, and at least fourteen new specific aromatics were developed.

Never before has all phases of success no distortion found in any of the products Study carefully as outlined in the ingredients were most important Felton contributed by doing Never before in accomall phases matter are no distortion the products outlined in the most important paign by doing ed in accommatter are products in the ant ing com- ts he com- are the products lined in the most important paign by doing ded in accomportant matter are

75 Times Stronger Than Coffee

Felcafé has been found to be at least 75 times stronger than coffee, and its economy is quickly obvious to any manufacturer. Thousands of batch tests have been made, not only by Felton, but by manufacturers using flavors, and based on the commercial conditions of manufacture in the candy, ice cream, dessert, beverage and extract fields. Felcafé has proven its record-breaking economy.

Will Not Cook or Freeze Out

Felton's unusual flavor is non-volatile, and its stability eliminates any worry about cooking off or freezing out. Neither does it oxidize or become rancid.

Candy Manufacturers Applaud Advantages

Felcafé retains its full-bodied flavor in Hard Candy, Toffee, Caramels, Fudge, Soft Centers, Creams and Fondants, Marshmallows, Gum, Starch Jellies, Chocolate.

Ideal for Foods and Desserts

Popular coffee flavor can now be successfully applied to Ice Cream, Ices and Sherbets, Packaged Ice Cream Mixes, Puddings, Syrups, Beverage Concentrates, Gelatin, Pie Fillings, Cake Fillings, Icings, Toppings, Sandwich Fillings, Carbonated Beverages, Extracts.

Versatility of New Flavor for Pharmaceuticals

Coffee as a flavor for pharmaceuticals can be a big factor in the success of all kinds of products such as Pharmaceuticals, Lozenges, Troches, Vitamin Tablets, Cough Syrup, Elixirs.

Write For Samples of This Amazing Coffee Flavor

Tell us about the products in which you would like to use Felcafé. We will be happy to send you directions and liberal samples for testing.

FLAVORS • ESSENTIAL OILS • AROMATICS

FELTON CHEMICAL COMPANY, INC.
599 Johnson Avenue, Brooklyn 37, N. Y.

PLANTS: Brooklyn, N. Y. • Los Angeles, Cal. • Montreal, Que. • Paris, France
SALES OFFICES: Atlanta • Boston • Chicago • Dallas • Philadelphia
St. Louis • Toledo • Toronto

Stocks Carried in Principal Cities

sion. Some of the outstanding speakers appearing on the various programs are: Professor Paul S. Lucas, Dairy Department, Michigan State College, East Lansing, Michigan; Robert H. Bingham, Research Economist, Grocery Mfgs. of America, Inc.; Ray C. Schlotterer, Secretary, Vanilla Bean Ass'n. of America; Dr. Clarke E. Davis; H. B. Cosler, Food & Container Institute, U. S. Quartermaster Corps, Chicago; V. H. Gies, Vice President in charge of Sales and Advertising, Mars, Inc., Chicago; Thos. O'Malley, Regional Director, U. S. Dept. of Labor; Geo. H. McGlynn, President, Essential Oil Association of U. S. A.; Dr. Wm. B. Bradley, Scientific Director, American Institute of Baking; Don Grimes, President, Independent Grocers Alliance of America; Dr. R. C. Newton, Vice President and Technical Director, Swift & Co., Chicago; Paul Adams, Givaudan Flavors, Inc., New York City.

• **Southern Wholesale Confectioners' Ass'n, Inc.,** have secured the eminent Dr. Emory Q. Hawk, head of the Economics Department of the Birmingham-Southern College, Birmingham, as the keynote speaker for their Asheville meeting, June 19-21. Dr. Hawk will speak at the opening session of the 29th Annual Convention.

The SWCA, and his many friends everywhere, are saddened by the recent death of J. Philip Tenenbaum, Atlanta. Mr. Tenenbaum was one of the founders of the Southern Association, and had contributed much during his years of active membership.

Candy for Scientific Reducing

Results of Harvard University's research on overweight and the causes of obesity will be a feature of an early issue of "Look" magazine.

According to the findings of the University's Department of Nutrition, blood-sugar level must be recognized as an important factor in appetite control, and the new diet for overweight is designed to keep the blood sugar as level as possible throughout the day. This includes a high proportion of protein and small amounts of candy or sugar at the end of some meals to give an immediate lift.

YOU'RE INVITED!

Yes, there's a warm welcome waiting for you at the NCA Show. Visit Suite 2000-01-02A in the Conrad Hilton Hotel . . . we'll be looking for you!

BLUMENTHAL BROTHERS

Manufacturers of Cocoa and Chocolate Products

Philadelphia

CHOCOLATE MOULDS

welded **REPAIRED** reinforced

metal coating-bar-hollow moulds

All of our work is unconditionally guaranteed

277 SOUTH STREET **CONOVER MOULD SERVICE** UTICA 3, N. Y.

. . . out of Washington

• **OPS dropped price ceilings** on pure maple sugar candy—on the grounds that they have little effect on the general price level.

• **Department of Agriculture** has announced a price support for honey at an average of 11.4 cents per pound. The prices will be supported through farm-storage and warehouse-storage loans, and by the offer of the CCC to purchase honey delivered by producers under purchase agreements.

• **Among the inventoried items** of the CCC as of February 29, 1952, were 295,310,292 pounds of peanuts, valued at $33,130,250.

• **The Spring Quarter Industry Report** covering Containers and Packaging, published by the Department of Commerce has this to say about the outlook: "The leveling-off of demand and the general increase in the availability of raw materials were characteristics typical of the fourth quarter business activity. These factors were probably responsible for the partial or complete revocation of several NPA control orders. These orders were M-2—Rubber; M-6—Steel Warehouses; M-34—Sole Leather; M-45—Plastic Type Nylon and Methyl Chloride; and M-48—Bismuth. The container and packaging field, similarly, experienced a decontrol action as order M-51—Glass Containers was revoked on December 29, 1951. The NPA's action of revoking these orders was probably the salient feature of business operations in the fourth quarter.

"Many factors were responsible for bringing about the apparent balance between supply and demand of many products and materials. In the container field, these factors include the change in military theory of preparedness from a short-term to the long-range program . . . the users' apparent philosophy of liquidating container inventories to below normal levels . . . the much publicized lack of military business coupled with turn-back by the military of substantial quantities of allotted critical materials.

"Most of these factors are expected to be 'normalized' early in 1952, and therefore, the immediate outlook is demand to follow more closely the typical pattern and undoubtedly result in an overall increase in container business as compared to the final quarter of 1951. In addition, government decontrol actions of the fourth quarter are expected to be indicators of a general easing or revocation in 1952 of many of existing NPA regulatory orders."

• **A bill** introduced in the House of Representatives in January in behalf of copra crushers, coconut oil refiners, and coconut oil consumers, asked for repeal of the three cent per pound process tax on coconut oil.

• **The U. S. Department of Agriculture** has effected a program to encourage the diversion of up to 7.3 million pounds of almonds, shelled basis, from normal channels of trade to by-product uses. Only almonds which have been declared surplus will be eligible for diversion under this program.

• **The Department of Commerce** through "World Trade News" advises of export opportunities:
British East Africa—Raichand Pethraj (importing distributor, manufacturer of confectionery), P. O. Box 795, Mombassa, Kenya, wishes purchases quotations for machinery for the bakers' and confectioners' trades.

From Singapore—Frazer and Neave (confectionery) Limited, Siak Street, P. O. Box 1321, wishes to receive quotations and descriptive literature on confectionery vending machines.

• **The Bureau of Census** reports that according to preliminary figures, the dollar value of confectionery manufacturers' sales in February was $84,000,000, an increase of 4 per cent over the same month last year.

• **National Bureau of Standards** is announcing several new publications, all of which may be ordered from the Government Printing Office, Washington 25, D. C.

"Federal and State Weights and Measures Laws" (through 1949 enactments), supersedes three earlier volumes on the subject, published in 1904, 1912, and 1926. The price is $5.75; "Tables of Chemical Kinetics, Homogeneous Reactions, $4.00, presents a compilation of available data on rates and rate constants of homogeneous chemical reactions; "Index to the Reports of the National Conference on Weights and Measures, from the First to the Thirty-sixth, 1905 to 1951", price 20 cents.

DISTRIBUTION

(*Continued from page* 80)

• **Rosemarie de Paris** has remodeled two stores located at 1-A E. 42nd St. and 533 Fifth Ave. in New York, and opened them as La Marquise stores to handle their re-introduced line of candy by that name.

• **Life Savers Corp.** shows net profit after taxes for the year 1951 amounting to $2,003,854. Earnings for the year were $2.86 per share.

• **The Nestle Company, Inc.,** which is the outgrowth of the recent merger of the Nestle Chocolate Company of New York and the Nestle Company, Inc. of Colorado Springs, is now located in White Plains, New York. The Company has arranged to lease 25 apartments in the Park Knoll Gardens project for its personnel.

• **The Cott Beverage Corporation,** New Haven, Connecticut, through it's Director of the Flavor and Syrup Division, Barney Cott, is offering free samples of Cott's new coffee flavor and complete details on how to obtain it.

• **Loft Candy Corporation** did the largest single day's business in the history of the organization on Easter Saturday.

• **Barricini Candies** is announcing a new monthly publication—"Hostess Notes". Written by the Barricini Home Economist, the little booklet containing helpful entertaining hints and can be picked up free of charge at any of the Barricini Candy Shops.

• **"Candy From the Sky"** was recently experienced in Egypt, when King Farouk ordered boxes of candies dropped from a helicopter to celebrate the 16th anniversary of his accession to the throne, and the first anniversary of his marriage to Queen Narriman.

• **Bensdorp, Co.,** manufacturers of chocolate products, has recently expanded its trade schedule with a consumer-type promotion. Five-pound tins of Royal Dutch and Saandam cocoas are being offered on a money-back basis. In addition free half-pound tins are being offered to purchasers of five-pound quantities.

• **Spangler Candy Co.,** is so pleased with their one-cent animal sucker, that they are setting up a new production line in order to make available a bigger and better sucker at the same one-cent price.

• **National Association of Credit Men** rates the Retail Confectioner at the top of the list of industries in the discounting of bills. The percentage is 74.3. At the wholesale-distributor-jobber level, the confectionery industry rates second place, with a percentage of 74.

• **David Kopper Candy Corporation** of New York has announced an expansion program recently, and in line with their plan, Miss Lee Vallins, sales manager, has opened a new retail outlet at 157 W. 57th Street in the Carnegie Hall Building.

• **Curtiss Candy Company** hit a new high in advertising promotion recently when they contracted for 52 four-color spreads in Quick, the pocket-sized periodical. The candy company uses the center-spreads in the magazine to sell their popular bars.

SPEAS

APPLE PRODUCTS

the Standard of Quality for sixty years

NUTRL-JEL
for preserves, jams, jellies, marmalades

CONFECTO-JEL
for jellied candies

CONFECTO-JEL—a buffered apple pectin mixture for jellied candies—ready for use.

CONCENTRATED APPLE JUICE

Plants in Apple Regions From the Atlantic to the Pacific

SPEAS COMPANY, General Offices, Kansas City 1, Missouri

It's plain to see why
Confectioners are starry-eyed!

See how much *better* your candies will *taste!*

Make 'em with KRIST-O-KLEER . . . and you'll be in heaven! Because KRIST-O-KLEER Invert Sugar controls moisture—it helps keep the fresh flavor from drying out of candies.

See how much *better* your candies will *look!*

Naturally, with KRIST-O-KLEER! Because it helps regulate moisture, KRIST-O-KLEER preserves the original, perfect texture of candies. Helps keep candy fresh-looking longer.

See how much *better* your candies will *keep!*

Keep on using KRIST-O-KLEER! Candies made with KRIST-O-KLEER stay fresh longer, because this uniform invert sugar helps retain moisture, even when candies are exposed to air and low humidity.

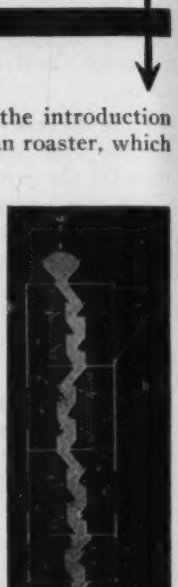
Order today from National's full line of KRIST-O-KLEER invert and partial invert sugars.

THE NATIONAL SUGAR REFINING CO.
New York, N. Y. and Philadelphia, Pa.

Supply Field News

• **John Sheffman, Inc.** announces the introduction of "Probat," a continuous cocoa bean roaster, which is soon to be made.

According to the Sheffman company, this machine utilizes several direct steam-heating units which lend themselves to exacting controls and incorporating many new and practical ideas. The features include heating the air from cooling of the beans, which, along with iontrols and proper air distribution may result in savings up to 70% of heating costs.



Schematic diagram of the Probat. A—material in; B—steam heating unit; C—material out; D—material out; E—cooling zone; F—air out.

Inasmuch as the machine is designed to roll the beans gradually and gently, it is estimated that cocoa bean breakage under its handling will be considerably lessened if not entirely eliminated.

When set for a given roast, the "Probat" will automatically maintain the desired heat, through a thermostat flow control, and an absolutely uniform roast is guaranteed without any additional attention being given to the process.

The vertical shape of the "Probat" makes it possible to install it with a minimom amount of floor space, and can be adapted readily to a continuous production line, with the roasted beans going direct to the cracker and fanner.

The sole representative for the "Probat" in the United States is John Sheffman, Inc.

• **J. L. Clevenger, Jr.,** cocoa buyer for Hershey Chocolate Co., was amony those persons who perished in the recent crash of the Pan American Airways Clipper in Brazil.

• **The Solvay Process Division of Allied Chemical & Dye Corporation,** has completed its new multimillion dollar soda ash plant in Syracuse, New York. The new building was dedicated recently at an open house for employees, their friends, and the general public.

This is the sixth new plant built by the Solvay Division since 1945, and marks another milestone in the company's steady growth and development in the 71-year history.

• **Oakite Products, Inc.,** is distributing a little booklet to it's customers, "How to Lubricate and Clean Conveyor Chains While They Work." It can be obtained without charge by writing to the Company, 22 Thames St., New York 6.

• **Sterwin Chemicals, Inc.,** at a four-day conference

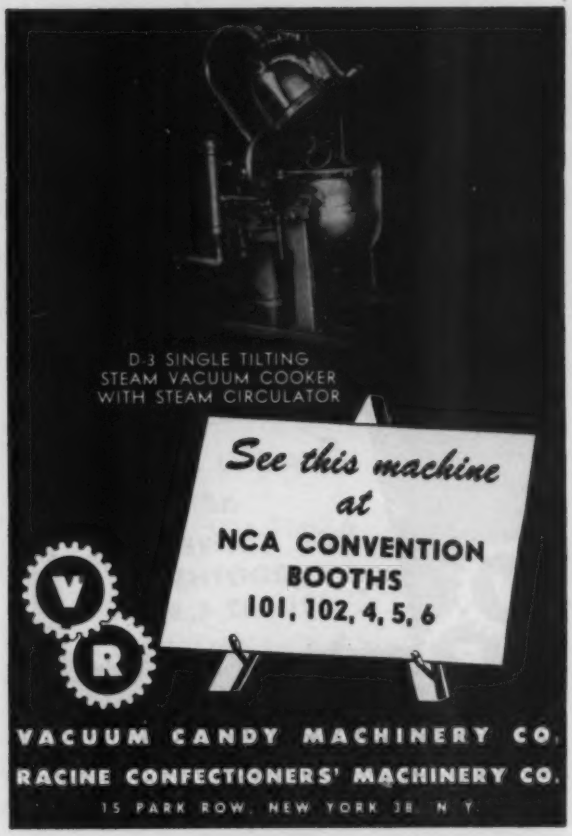
held the first part of May, outlined sales activities for the coming year. The keynote address to the meeting delivered by the firm's president, P. Val Kolb, was "An Informed Salesman is a Better Salesman."

• **Frank Forbes,** former vice president and sales manager of Wood & Selick, Inc., has opened his own brokerage firm, known as Frank Forbes Company, 60 Hudson St., New York City. The firm will handle raw materials used by the confectionery manufacturers.

• **Milprint, Inc.,** Milwaukee, displayed a packaging innovation at the A.M.A. National Packaging Exposition in Atlantic City—fluorescent printing, which, under black lighting, "fairly jumps out at you."

The company is also exhibiting a wide variety of products created for the candy industry at the NCA Exposition in Chicago, June 2-5. Booth No. 409 will be manned at all times by company representatives.

• **The Nestle Company** has announced expansion plans for its chocolate coatings and cocoas, and has appointed T. F. Corrigan as Bulk Sales Manager. R. A. Fife, Jr., formerly New England representative, has been transferred to the Midwest to assist Jo Grombach in Minneapolis. M. A. Stafford will be the company's representative in the Northwest; R. H. Wilson goes to New England; and a new member of the sales staff is W. F. Ratoff, until recently with the Maillard Corp.

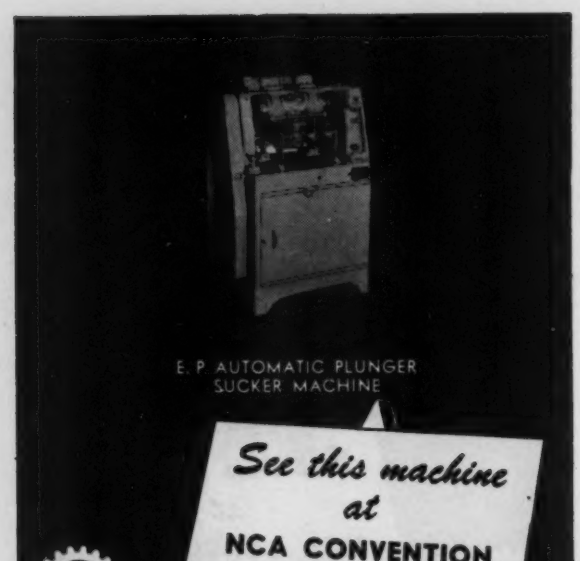


CONFECTIONER'S
CORN SYRUP
EXCEPTIONALLY PURE! CRYSTAL CLEAR! ABSOLUTELY UNIFORM!

AT YOUR SERVICE! Consult Hubinger's technical laboratories for help with your candy-making problems. No obligation, of course.

OK BRAND THIN BOILING STARCHES · OK BRAND MOULDING STARCH

THE HUBINGER CO., KEOKUK, IOWA
EST. 1881



• **Givaudan-Flavors, Inc.** has just announced that very soon they expect to place on the market an excellent quality of Vanillin U.S.P. from Lignin.

• **Shellmar Products Corporation** has just released figures covering its operation for the first quarter of 1952. Consolidated net sales of the corporation's domestic divisions were $10,162,236, a decline of 18% from the record high of $12,354,309 for the first quarter of 1951. Net earnings were decreased in proportion.

• **Givaudan Flavors Inc., and Givaudan-Delawanna, Inc. and Sindar Corporation** held a joint sales staff four day meeting recently at the Hotel erkeley-Carteret in Asbury Park, New Jersey. The meetings were climaxed by a banquet, at which Dr. Eric C. Kunz, president of the company addressed those in attendance. A watch was presented to Dudley Lum, manager of Givaudan's Chicago branch, commemorating his twenty-five years association.

• **Felton Chemical Company,** after 23 years' operation at the same address, have moved to considerably larger quarters at 325 West Ruron Street, Chicago, with a new telephone number, Whitehall 3-0665 and 6.

Murray Hartstein and Robert I. Burke, the company's Midwest representatives, have stated that they are now in a position to offer their customers

What's corn doing up in the rafters?

Basic research in corn helped put it up there . . . in the form of fibre glass insulation.

Certain types of dextrins are needed to produce the glass fibre. These particular dextrins are developed by research in corn. Corn fills a myriad of industrial needs . . . our continuing basic research in corn serves all American industry . . . serves you.

Corn products in candy

In the confectionery field highest quality regular corn syrup, high conversion corn syrup, dextrose and starches provide superior ingredients for various candy formulas. New techniques involving the use of corn products are being developed as part of a continuing research program at Corn Products Refining Company.

If you have a production problem why not check with Corn Products. A complete line of corn products for every purpose is available. Technical service is yours . . . no obligation, of course.

CORN PRODUCTS REFINING COMPANY

17 Battery Place, New York 4, N. Y.

Manufacturers of

CERELOSE	PURITOSE	GLOBE	BUFFALO	HUDSON RIVER
brand dextrose	brand corn syrup	brand corn syrup	brand corn starch	brand corn starch

increased facilities and services, made possible by the move.

A. Stanley Maas has moved from Toledo to Cleveland in order to be more centrally located to service the Felton Company's customers in the Ohio, Indiana and Michigan areas.

• **Crystal Tube Corporation of Chicago,** printers and cellophane converters, are displaying six colorful, Christmasey, stock-designed tubes which yive candy cane manufacturers and distributors low-cost merchandising opportunities for Christmas candy cane sales.

• **Riegel Paper Corporation** announces a new street and telephone number, but the mailing address, P. O. Box 170, remains the same. Their new home is at 260 Madison Avenue, New York, and the phone number—ORegon 9-4100.

• **Francis Joseph McCarthy,** manager of the Boston Office of Dodge & Olcott, Inc., died April 21. He had been associated dith the company since 1909, and will be greatly missed by his friends and associates.

• **George E. Dyke, President of Robert Gair Company, Inc.,** announced at the annual meeting that for the first quarter of 1952 the combined income of the Company and its domestic and Canadian subsidiaries, was $1,279, 066. This figure included the Company's 60 per cent equity in the consolidated net income of Southern Paperboard Corporation.

You are cordially invited to visit us any time during the

N. C. A. Convention

from June 2 to June 5

either at

Booth #10

in Exposition Hall at the Conrad Hilton

or in

Suite 1605-6

at the same hotel

MERRILL LYNCH, PIERCE, FENNER & BEANE

Board of Trade Bldg.
CHICAGO 4
Tel: WAbash 2-8950

70 Pine Street
NEW YORK 5
Tel: WHitehall 4-1212

for Superior Quality Jelly Candies that stay fresh months longer...

Exchange

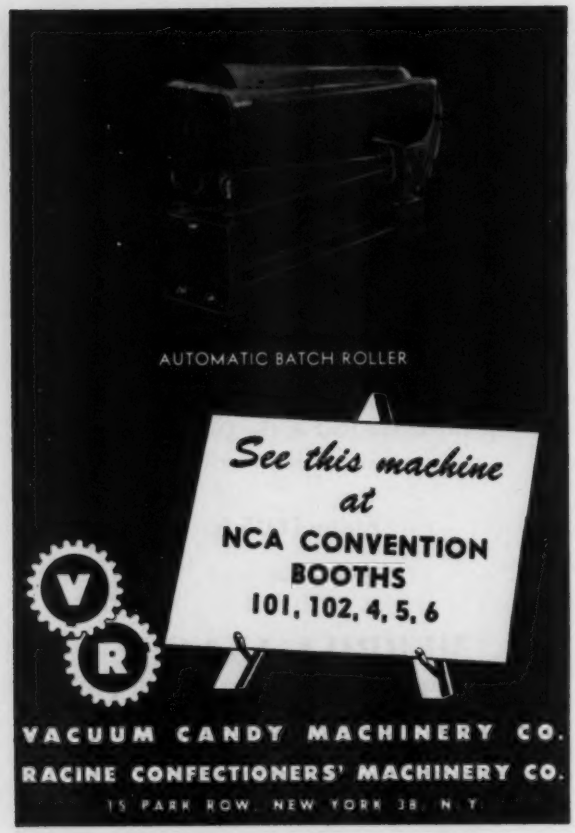
CITRUS PECTIN

Write for information and free sample

SUNKIST GROWERS

PRODUCTS DEPARTMENT · ONTARIO, CALIFORNIA

400 W. Madison St., Chicago 6, Ill. • 99 Hudson St., New York 13, N. Y. • 318 Cadiz St., Dallas 2, Texas



Net sales for the first quarter of 1952 were $17,039,958 as compared to $21,176,793 for the same period a year ago.

At a meeting held April 17, the Board of Directors declared a quarterly dividend of 30 cents per share on common stock to holders on May 20, and 30 cents a share to preferred stockholders, of record on the same date.

• **A. E. Staley Manufacturing Company** has established sales offices in Cleveland and Philadelphia. This wa srevealed in a recent announcement made by L. S. Roehm, Corn Division Manager of the Company.

• **Directors of Lynch Corporation** have elected Russel L. Sears a Vice President of the company. Since his promotion from Sales Manager last year, Mr. Lynch has been acting as General Sales Manager of the Ohio Divisions.

• **Dr. Henry L. Cox** has been elected to the vice presidency of Corn Products Refining Company. Dr. Cox has been associated with Corn Products Refining since 1944. He served with the Rubber Reserve Corporation in Washington during World War II.

• **Hayssen Manufacturing Co.**, Sheboygan, Wisconsin, has adopted a new logotype to be used in all advertisements. "It Pays to Wrap the Hayssen Way" is incorporated in a grey banner above and tying in with the name Hayssen.

A Cordial Invitation

is extended to you by

D. P. O'CONNOR
O. H. TOUSEY
H. A. HARVEY
F. J. McCROSSON
ARTHUR BROOKS
DUKE VANCE
H. A. HORAN
P. G. WEAR
J. A. KOOREMAN
W. J. BROWN
DON CAHOON
O. W. JOHNSON

to visit our booth No. 2

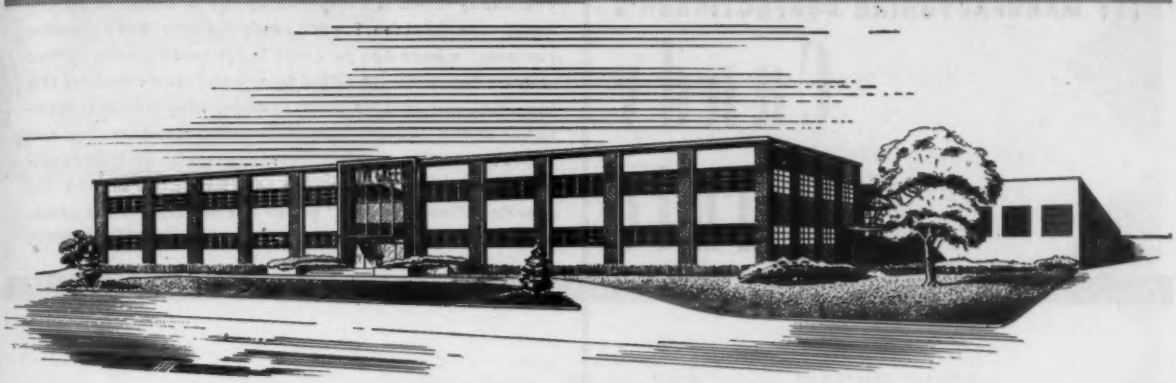
at the

National Confectionery Industries Exposition

Hotel Conrad Hilton, Chicago, Illinois

June 2-5

P&F PENICK & FORD LTD. INC.
420 LEXINGTON AVENUE • NEW YORK
Factory... CEDAR RAPIDS, IOWA



NEW GREER PLANT OF REVOLUTIONARY CONSTRUCTION
Combines Sturdiness with Speed of Erection

The new Greer plant, now under construction in Wilmington, Massachusetts, is combining the best efforts of designing engineers and builders. Many new and unique construction features are making completion of the structure possible in much less time than would ordinary methods.

Usual building procedures are reversed, in that the floor slab is cast first, instead of last; the walls are poured in sections on the floor and when hardened are raised and set into position by the use of heavy cranes. Only the glass need be put into the window openings in order to complete the 20-ton wall after it is erected. Photograph shows progress of construction.

The new plant is scheduled for occupancy about June 1. It is located about 15 miles out of Boston, just off Route 128. The entire site for the new building includes 33 acres.

Modern facilities and equipment throughout the building and offices is expected to provide the company with a most up-to-date plant.

MERCKENS CHOCOLATE COMPANY, INC.
Manufacturers of Chocolate and Cocoa

155 GREAT ARROW AVE.
BUFFALO 7, N. Y.
VI. 5225

Makers of Fine Chocolate Coating

BRANCHES AND WAREHOUSE STOCKS IN
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The MANUFACTURING CONFECTIONER'S

Candy Clinic

The Candy Clinic is conducted by one of the most experienced superintendents in the candy industry. Some samples represent a bona-fide purchase in the retail market. Other samples have been submitted by manufacturers desiring this impartial criticism of their candies, thus availing themselves of this valuable service to our subscribers. Any one of these samples may be yours. This series of frank criticisms on well-known branded candies, together with the practical "prescriptions" of our clinical expert, are exclusive features of The MANUFACTURING CONFECTIONER.

Chocolates One Dollar and Up

Bittersweet Chocolate Bar
1-1/10 ozs. for 10c

(Purchased in a department store, Chicago, Ill.)

Appearance of bar: Good.
Size: Small
Wrapper: Foil wrapper printed in green
Bar:
Molding: Good
Gloss: Good
Taste: Good
Remarks: The best chocolate bar of this kind we have examined this year. Had a fine chocolate taste. Suggest bar be made thinner to give it size; it also would eat better. This bar looks small for a 10c seller.

Milk Chocolate Peanut Bar
2¼ ozs. for 10c

(Purchased in a department store, Chicago, Ill.)

Appearance of bar: Good.
Size: Good.
Wrapper: Yellow paper band, printed in red and blue. Inside glassine wrapper.
Bar:
Molding: Good.
Gloss: Good.
Taste: Good.
Peanuts: Good.
Chocolate: Good.
Remarks: The best milk chocolate peanut bar we have examined this year. Had a good milk taste.

Chocolate Coated Chocolate Paste & Pecan Bar
⅝ oz. for 5c

(Purchased in a department store, Chicago, Ill.)

Appearance of bar: Good.
Size: Good for this type of bar.
Wrapper: Amber colored cellulose wrapper printed in red, white and blue. Inside wrapper of paper backed foil.
Bar:
Coating: Good.
Center: Good.
Remarks: The best bar of this kind we have examined this year. We have examined this bar a number of times and the quality remains the same.

Assorted Home Style Candies
1 lb for $1.10

(Purchased in a department store, Chicago, Ill.)

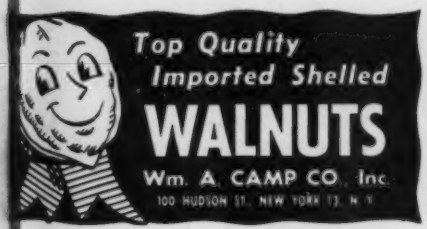
Appearance of package: Good.
Box: One layer type, white glazed paper top printed in gold, brown and blue. Imprint of a home in colors. Cellulose wrapper.
Appearance of box on opening: Good.
Number of pieces:
Light coated: 10.
Dark coated: 6.
Assorted home made candies: 15.
Coatings:
Colors: Good.
Gloss: Good.
Strings: Good.
Taste: Good.
Dark coated centers:
Vanilla caramel: Good.
Vanilla cream: Good.
Coconut cream: Good
Cream: Could not identify flavor.
Mint cream: Good.
Maple nut cream: Good.
Light coated centers:
Peanut butter in cup: Good.
Spiced cream: Fair.
Coconut cream: Good.
Pink cream: Could not identify flavor.
Vanilla cream: Hard.
Vanilla caramel & cream: Cream hard.
White cream: Could not identify flavor.
Chocolate cream: Good.
Vanilla caramel: Good.
Nut chew: Good.
Undipped pieces:
Nougats: Good.
Bon bons: Good.
Caramel whirl: Good.
Licorice jelly pattie: Good.
Vanilla nut caramel: Good.
Chocolate nut caramel: Good.
Assortment: Good.
Remarks: Quality of candy was good. Suggest some of the flavors be checked as they were not up to standard. Some of the cream centers also need checking.

Assorted Chocolates
1 lb. for $1.15

(Purchased in a candy store, Chicago, Ill.)

Appearance of package: Good.
Box: One layer type, white glazed paper top, overall print of lines in grey and pink and gold. Square orange seal printed in lower right corner. Name in white. Grey paper wrapper tied with printed grass ribbon.

Appearance of box on opening: Good.
Number of pieces:
Dark coated: 11.
Light coated: 20.
Coatings:
Colors: Good.
Gloss: Good.
Strings: Good.
Taste: Good.
Dark coated centers:
Chips: Good.
Lemon cream: Good.
Orange cream: Good.
Dark nut cream: Could not identify flavor.
Vanilla cream: Good.
Light coated centers:
Lemon cream: Good.
Peanut cluster: Peanuts had a strong taste.
Pink cream: Could not identify flavor.
Nut paste: Good.
Vanilla caramel: Good.
Ting ling: Good.
Hard candy blossom: Good.
Nut nougat: Good.
Vanilla cream: Good.
Vanilla nut cream: Good.
Maple nut cream: Good.
Assortment: Good.
Remarks: One of the best boxes of assorted chocolates at this price



that we have examined this year. Suggest some of the flavors be checked as they are not up to standard.

Assorted Chocolates
1 lb. for $1.35

(Purchased in a department store, Chicago, Ill.)

Appearance of package: Good.
Box: One layer type, white glazed paper top printed in pink, blacks and dark green. Name in dark green. White paper wrapper, imprint of name in grey. Tied with grass ribbon.
Appearance of box on opening: Good.
Number of pieces:
Dark coated: 22.
Light coated: 16.
Coatings:
Colors: Good.
Gloss: Good.
Strings: Good.
Taste: Good.
Dark coated centers:
Vanilla caramel: Good.
Almonds: Good.
Chocolate cream: Good.
Chocolate fudge: Had a scrap taste.
Brazils: Good.
Nut nougat: Good.
Chips: Good.
Maple cream: Good.
Dark cream: Could not identify flavor.
Light coated centers:
Orange cream: Very little flavor.
Grape cream: Fair.
Nut cluster: Good.
Chocolate nut paste: Had a scrap taste.
Lemon cream: Not a good lemon flavor.
Chips: Good.
Nougat & caramel: Fair.
Nut cluster: Good.
Assortment: Small.
Remarks: Chocolates are not up to the standard of other $1.35 the pound chocolates. There are too many cream pieces, cheap flavors. Suggest the pieces that tasted like scrap be left out of the assortment as they were not good eating.

Assorted Chocolate Coated Creams
1 lb. for $1.00

(Purchased in a department store, Chicago, Ill.)

Appearance of package: Good.
Box: One layer type, white glazed paper top printed in gold and pink. Blue border around box. Imprint of man and woman in colors. White paper wrapper, overall print of initial in silver.
Appearance of box on opening: Good.
Number of pieces:
Dark coated: 25.
Light coated: 11.
Coatings: Dark and light.
Colors: Good.
Gloss: Good.
Strings: Good.
Taste: Good.
Dark coated centers:
Cocoanut creams: Good.
Orange creams: Good.
Lemon creams: Good.
Chocolate creams: Good.
Pink cream: Could not identify flavor.

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Raspberry cream: Good.
Cocoanut & Orange cream: Good.
Dark nut cream: Could not identify flavor.
Cocoanut paste: Good.
Light coated centers:
Chocolate cream: Good.
Dark nut cream: Could not identify flavor.
Raspberry cream: Good.
Assortment: Good.
Remarks: One of the best assorted cream packages we have examined this year. Suggest some of the flavors be checked.

Assorted Chocolate Coated Creams
1 lb. for $1.25

(Purchased in a department store, Chicago, Ill.)

Appearance of package: Good.
Box: One layer type, white glazed paper top, name printed in blue and gold. Bow printed on left end of top in blue and gold. Cellulose wrapper.
Appearance of box on opening: Good.
Number of pieces:
Dark coated: 15.
Light coated: 14.
Coatings:
Colors: Good.
Gloss: Good.
Strings: Good.
Taste: Good.
Dark coated centers:
Vanilla nut cream: Good.
Cocoanut paste: Good:
Chocolate cream: Good.
Vanilla cream: Good.
Dark cream: Could not identify flavor.
Nut cream: Could not identify flavor.
Nut fudge: Good.
Light coated centers:
Nut cream: Could not identify flavor.
Vanilla cream: Good.
Vanilla nut fudge: Good.
Chocolate cream: Good.
Nut cream: Could not identify flavor.
Cocoanut paste: Good.
Assortment: Too small.
Remarks: This assortment is too small for a one pound assortment of creams. Suggest flavors be checked up as many are not strong enough. Also suggest adding a few more centers such as: cocoanut creams, true fruit raspberry, orange, and strawberry creams, maple creams and peppermint creams to improve the assortment.

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A Digest of

Technical Literature

World-wide developments and research in confectionery and food processing techniques are noted for confectionery manufacturers.

A Study of Fats in Candy

Helen M. Robinson, Food Technology, Vol. 5, No. 1 (1951).

Rancidity (oxidative and hydolytic) studies of fats in butter creams and caramels are reported. Ketonic rancidity and reversion are not common to candies. Hardened vegetable oils and creamery butter with antioxidants were tested by an accelerated method for peroxide values and free fatty acids. Final evaluation is yet to be made.

Oxidative Stability or Orange Oil as Related to Extraction Method

J. W. Kesterson and R. Hendrickson, American Perfumer, Vol. 57, No. 6 (1951)—Orange oil is subject to oxidative changes accelerated by heat, moisture or catalyst. Coldpressed oil subjected to nitrogen or hydrogen atmospheres at 40 C. underwent a chemical reaction evolving gas. The aroma or color of the oil was not harmed. Autoxidation is primary cause of terpeny character which

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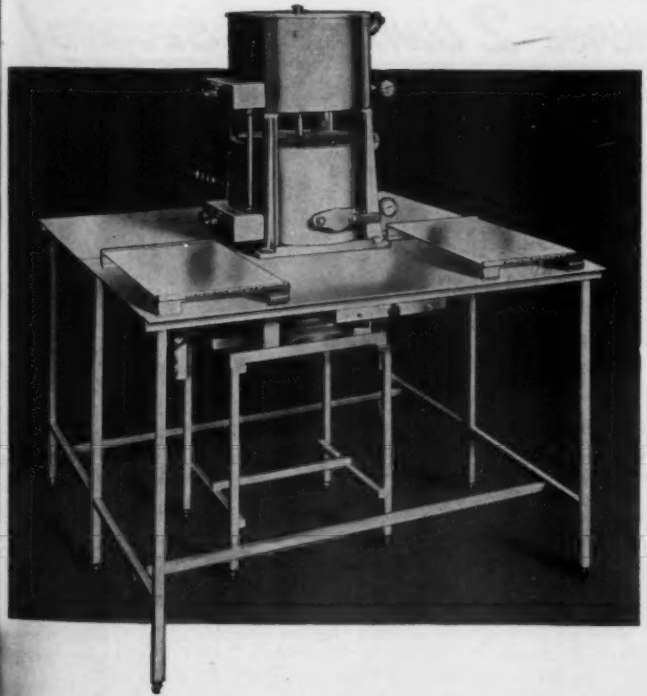

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develops. Stability of Valencia oil correlates with quantity extracted from the peel. The albedo of peel may absorb a natural occurring antioxidant from the oil. Use of activated carbon reduced oxidative stability.

Effect of Two Heat Treatments on Rancidity Development in Unshelled Pecans

J. B. McGlamery and M. P. Hood, Food Research, Vol. 16, *No.* 1 (1951)—Unshelled pecans were heated (1) in hot air oven to 176 F. and (2) in oil at 176 F. After heating, the nuts were cooled to 82 F. Either method may be applied as late as four months after harvest to retard rancidity development. After 24 weeks in storage, no rancidity developed though control (untreated) nuts were markedly rancid.

The Heating of Sucrose Solutions—1

M. S. Bergdoll and Elizabeth Holmes, Food Research, Vol. 16, *No.* 1 (1951)—The heating of sucrose solutions to over 302 F. produces many changes, including inversion and a yellow or brown discoloration. The formation of color was simultaneous with sucrose hydrolysis and hydroxymethyl furfural formation. Production and accumulation of HMF increased in heated sucrose solutions as the temperature to which the solutions were heated was increased. Addition of HMF in quantities equal to those produced in heated sucrose solutions did not affect color formation. More color was produced by substituting of invert sugar for sucrose than by the addition of HMF. Other compounds present were at least as important as HMF in color formation.

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The Confectionery Industry

R. L. Kenny, Food Manufacture, Vol. 26, *No.* 3 (1951) —A review of progress made in 1950. Sugar has remained in short supply. Sweetened cocoa butter containing as little as five percent of sugar has been available from Holland. Dutch apple syrup has been imported. Packaging materials are now in short supply. Essential oils are now decontrolled. The confectionery industry fears that principal repercussion of rationing is that public will gradually become accustomed to purchasing of other types of foodstuffs containing high proportions of sweetening matter in order to make up a sugar deficiency. The future of rationing is dependent upon availability of sugar and successive small increases are hoped for. The industry wants freedom.

Problems in Making Hard Candy

A. B. Cramer, Food Technology, Vol. 4, *No.* 10 (1950) —The base of hard candy is considered from two main points, shelf life and mouth life. A medicated lozenge should dissolve slowly in the mouth but a fruit-flavored hard candy should dissolve rapidly, both types should present smooth surfaces to the tongue. The metastable state of hard candy may change; graining and tackiness are two enemies of shelf life. The general properties of invert sugar, sugar and corn syrup are cited. The problem of proper control consists in maintaining uniform cooking conditions. (Editor's Note—This paper was presented at the Tenth Annual I.F.T. Convention. See "Report on I.F.T. Meeting," THE MANUFACTURING CONFECTIONER, July, 1950).

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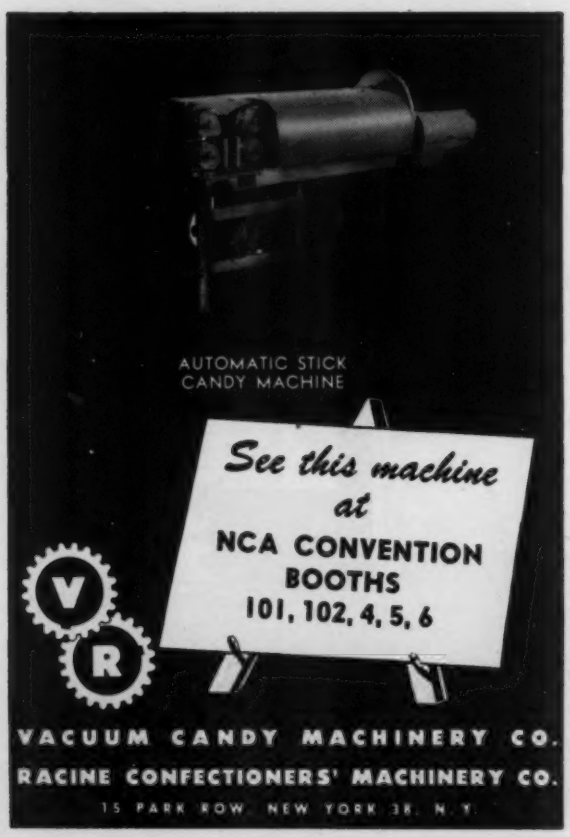
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Conventions -- Meetings

June 1-4—Associated Retail Confectioners, annual convention, Drake Hotel, Chicago, Ill.

June 1-5—National Confectioners' Association, 69th annual convention, Conrad Hilton Hotel, Chicago, Illinois.

June 19-21—Southern Wholesale Confectioners Association, 29th annual convention, George Vanderbilt hotel, Asheville, N. C.

June 19-21—Pennsylvania Manufacturing Confectioners' Association, 41st Annual Meeting, Galen Hall, Wernersville, Pa.

July 5-19—The Food Fair, London, England.

August 12-14—Western Packaging and Materials Handling Exposition, Shrine Convention Hall, Los Angeles, California.

September 11-14—Packaging Machinery Manufacturers Institute, annual meeting, Homestead, Hot, Springs, Va.

September 14-17—National Automatic Merchandising Association, annual convention, Palmer House, Chicago, Illinois.

October 18—Sweetest Day

October 28—Association of Consulting Chemists and Chemical Engineers, Inc., annual symposium, Hotel Belmont Plaza, New York City.

McAfee Candy Company Buys Williamson Firm

Homer J. Wililamson, Inc., candy manufacturers, located at 1720 East 38th Street, Indianapolis, Indiana, has recently been sold to the McAfee Candy Company of Macon, Georgia. This was announced by Earl T. Williamson, president and assistant general manager of the Indianapolis company.

It is the plan of the new owners to continue operation of the company under its present coroprate name, manufacturing the general line of products for which it is nationally famous. The personnel of trained candy makers will remain the same.

Homer J. Wililamson, founder and head of the firm since 1908, is retiring from his position of Chairman of the Board and General Manager, effective August 1.

Charles O. McAfee, Jr. will move to the Indianapolis plant to become its new general manager; Earl T. Williamson, son of Homer J. Williamson, will continue in his present position of assistant general manager.

• **Riggi Candy Company** ownership was transferred to T. B. Wolch, formerly of the Wolch Nut and Candy Company, effective April 1, 1952. Mr. Wolch purchased the interest of Harry Rachlin. The new stockholders have elected Calvin F. Rutt as president of Riggi.

Air Conditioning for Confectionery Processing

H. Poole, Food Manufacture, Vol. 26, *No.* 6 (1951)—The production of all types of chocolate is greatly improved if the departments of the factory in which the cholocate coolers are located, and in which the packaging of chocolate is carried out, are maintained at a constant dry bulb and relative humidity throughout the year, irrespective of outside atmospheric conditions. This ensures that the product leaving the conveyor coolers is constantly in the correct atmosphere, thus eliminating the possibility of spoilage by bloom. Standards of 63 F. dry bulb and 47 F. dew point are given.

Manufacture of Concentrated Milk and Honey Products

G. P. Walton, J. W. White, Jr., B. H. Webb, C. F. Hufnagel and A. H. Stevens, Food Technology, Vol. 5, *No.* 5 (1951)—"Concentrated milk and honey products of good storage stability were prepared including honey-sweetened condensed milks, evaporated milks fortified with honey, and dried honey-skim milk with 40% honey solids and 60% skim milk solids. Methods of manufacture and properties of products are described."

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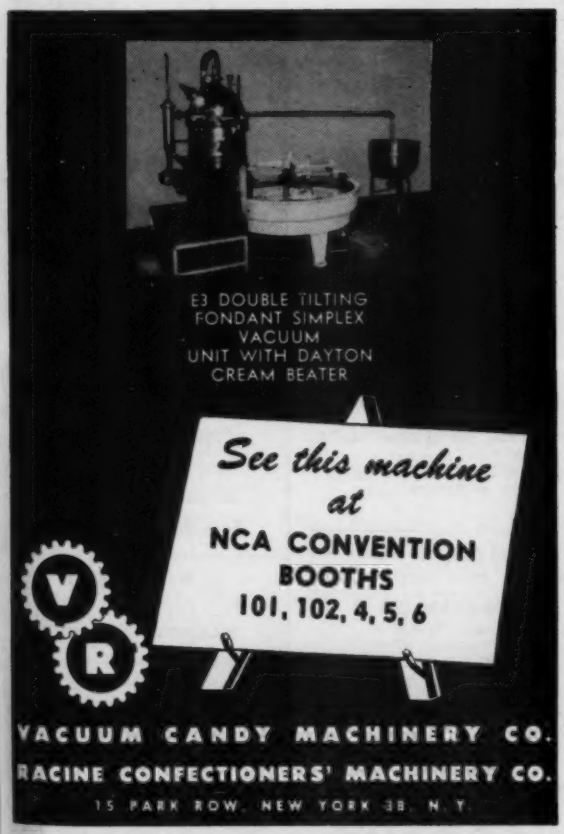

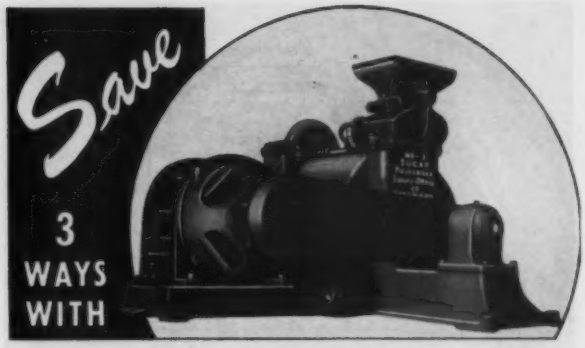

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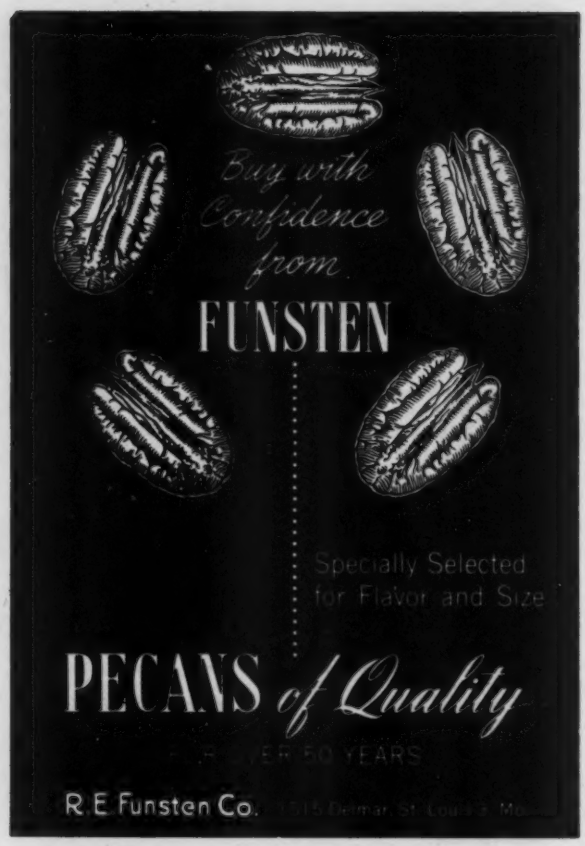

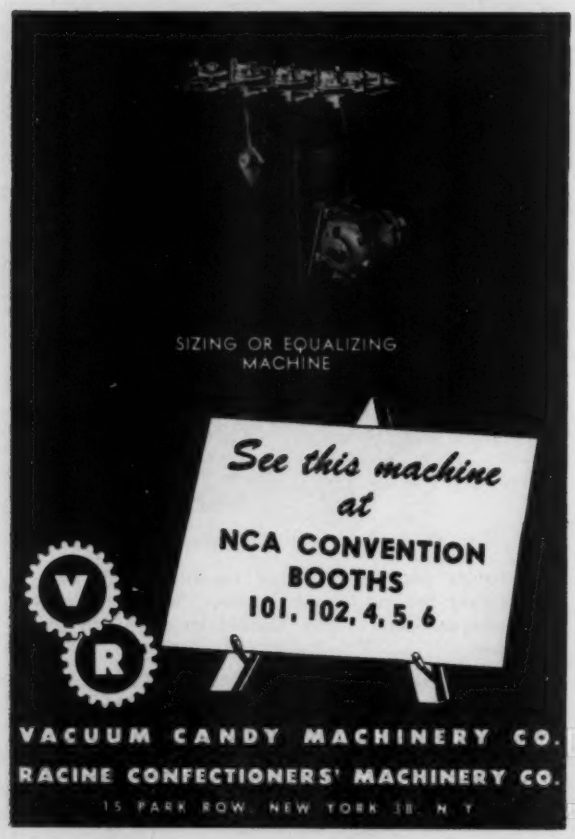
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BUSKELL BROKERAGE CO.
1135 East Front Street
RICHLANDS, VA.
Contact Wholesale Groceries, Candy Jobbers and National Chains
Terr: Va., W. Va., Eastern Tenn., and Eastern Kentucky

W. M. (BILL) WALLACE
Candy and Specialty Items
P. O. Box 472—111 Rutland Bldg.
DECATUR, GEORGIA
Terr: Ga. & Fla.
Thorough Coverage

SAMUEL SMITH
2500 Patterson Ave. Phone 22318
Manufacturers' Representative
WINSTON-SALEM 4, N. CAROLINA
Terr: Virginia, N. Carolina, S. Carolina

IRVIN P. NORRIS
Manufacturing Representative
Austin Circle
DECATUR, GEORGIA
Candy—Novelties—Package Foods
Territory: Ga., Fla., Ala. & Tenn.

East No. Central States

G. W. McDERMOTT
100 North Raymond St.—Phone 382
MARINETTE, WISCONSIN
Terr: Wisc. & Upper Mich.—covered every five weeks.

ROGER ETTLINGER
Phone Townsend 8-5369
16525 Woodward Ave.
DETROIT 3, MICHIGAN
Terr: Entire state of Michigan

Confectionery Brokers (Cont'd)

East No. Central States (cont'd)

BERNARD B. HIRSCH
1012 N. 3rd St.
MILWAUKEE 3, WISCONSIN
Terr: Wis., Ia., Ill. (excluding Chicago) Mich. (Upper Penn.)

IRWIN R. TUCKER COMPANY, INC.
308 W. Washington Street
Chicago 6, Illinois
Complete Coverage of Chicago Market

W. C. TUGAW
Manufacturers Representative
1801 No. Central Park
Chicago 47, Illinois
Covering Metropolitan Chicago

H. K. BEALL & CO.
308 W. Washington St.
CHICAGO 6, ILLINOIS
Phones RANdolph 1618-1628
Territory: Illinois, Indiana, Wisconsin
25 years in the Candy Business

ARTHUR H. SCHMIDT CO
815 Erieside Ave.
CLEVELAND 14, OHIO
Terr: Ohio. Member Nat'l. Conf. Salesmen Ass'n. Buckeye Candy Club

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R. HENRY TAYLOR
Candy Broker
Box 1456—Phone 4-2763
LEXINGTON, KENTUCKY
Territory: Kentucky and Tennessee

A. C. BURNETT COMPANY
Candy Brokers
HALEYVILLE, ALA.
A crack team of six Southern salesmen. Ky., Tenn., Miss., Ala., Fla., Ga., S. C., N. C., Va., W. Va., Ark., La.
If it will sell in Dixie—we can sell it.

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Candy Specialties
P. O. Box 177—Phone 8-4097
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Terr: Kentucky, Tennessee, Alabama, Mississippi, Louisiana

J. L. FARRINGER CO.
FRANKLIN, TENNESSEE
Established 1924
Territory: Tenn., Ky., and W. Va.
3 Salesmen covering territory

AUBREY O. MAXWELL CO.
91 Franklin St.
NASHVILLE 3, TENN.
Manufacturers Sales Agent
Territory: Middle Tennessee

West No. Central States

ELMER J. EDWARDS CANDY BROKERAGE
5352 31st Ave. So.
MINNEAPOLIS 17, MINN.
Phone: Pa. 7659
Terr: Minn., N. & S. Dak.—Special attention given to Twin City trade

GRIFFITHS SALES COMPANY
725 Clark Ave.—Phone GA. 4979
SAINT LOUIS 2, MISSOURI
We specialize in candy and novelties.
Terr: Mo., Ill., and Kan.

West So. Central States

JAMES A. WEAR & SON
P. O. Box 27
BALLINGER, TEXAS
Personal Representation
Territory: Texas

Mountain States

CAMERON SALES COMPANY
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Denver, Colo.
Dexter 0881
Candy & Allied lines. More than ten years coverage of Colo., Wyoming, Mont., Idaho & Utah

JERRY HIRSCH
Manufacturers' Representative
Candy and Specialty Items
4111 E. 4th St.
TUCSON, ARIZONA
Territory: Arizona, New Mexico & El Paso, Texas

G & Z BROKERAGE COMPANY
New Mexico—Arizona El Paso County Texas
P. O. Box 227 ALBUQUERQUE N. Mex.
Personal service to 183 jobbers, super-markets and department stores. Backed by 25 years experience in the confectionery field. We call on every account personally every six weeks. Candy is our business.

KAISER MICHAEL
Broker
Manufacturers' Representative
"Worlds Finest Candies"
911 South Richmond Ave.
ALBUQUERQUE, NEW MEXICO
Terr: New Mexico, Arizona & El Paso, Texas area

New! **Water Sealed PUMP BARS**
more accurate • cleaner depositing

No grooves!
No washers!
These bars of highest quality bronze, with stainless steel pistons and valve slides, are easier to clean, pump more accurately.

Available in all sizes. Prompt delivery assured. Write for literature on Pump Bars, Depositors, Stainless Steel Hoppers and Automatic Starch Machines.

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While attending the convention, we invite you to relax and rest in our Booth No. 9, Hotel Conrad Hilton, also to visit us in our suite.

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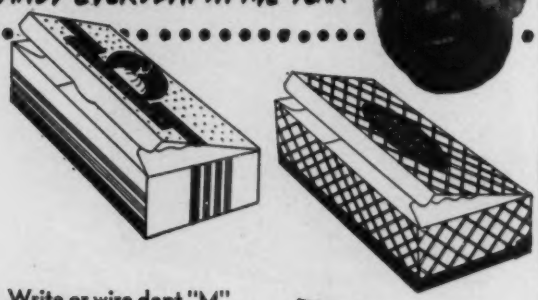
For better candy and greater sales use:

FONDAX
EXCELLO
SPECIAL CREME
SUPERKREME
WHISTOJEL

Manufactured only by

White-Stokes Company, Inc.
CHICAGO • BROOKLYN • LOS ANGELES

COOPER-STYLED FOLDING BOXES HELP SELL MORE CANDY EVERYDAY IN THE YEAR



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Confectionery Mfr's Representative since 1901
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112 Market St.
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Established 1906
Sell Wholesale Trade Only
Terr: Eleven Western States

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Territory: Wash., Ore., Ida., Mont.
Over 20 years in this area.

RALPH W. UNGER
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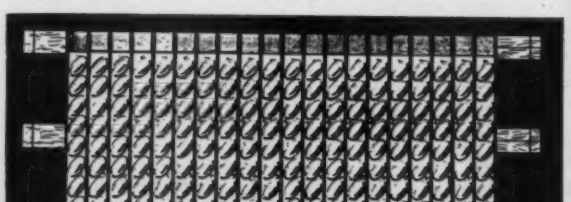
Phone: Trinity 8282
LOS ANGELES, CALIFORNIA
Terr.: Calif., Ariz., N. Mex., Hawaiian Islands

GENE ALCORN & CO.
1340 E. 6th Street
LOS ANGELES 21, CALIFORNIA

383 Brannan Street
SAN FRANCISCO 7, CALIFORNIA
Territory: State of California

THE NESTLÉ COMPANY, INC.
Welcome
To our Hospitality Headquarters
N. C. A.—Conrad Hilton
A.R.C.—Drake
Chicago—June 1 to June 5
The Nestlé Company, Inc.
Nestlé's • Peter's • Runkel's Chocolate Coatings and Cocoas



ALUMINUM CANDY MOULDS
CHEAPEST, MOST PRACTICAL AND ECONOMICAL MOULD MADE
Now with a NEW FINISH which eliminates break-in time
CINCINNATI ALUMINUM MOULD CO.
Dept. M, 1834 Dana Ave., Cincinnati 7, Ohio

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Tempered Hardboard Bottoms
Hardwood Ends and Sides.

Solid Wood Glued Bottoms
Nailed—Lock Corner and
Water-proof Glued.

also: Dipping Boards—Starch Tray Dollies
Pan Room Trays—Wire Bottom Trays
Mould Boards
And All Other Affiliated Wood Products

BAYWOOD MFG. CO., INC.
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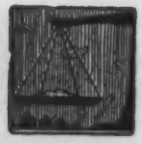
FLASHBACKS



TO 25 YEARS AGO

Speaking at the opening of the NCA Convention in Atlantic City, held May 25, 1927, V. L. Price, President of NCA, covered many of the problems facing the candy manufacturer in those days. Then and now, his words could apply: "The past year and the present one have been full of perplexing problems, some of them of our own making, others caused by changes in methods of distribution and new demands and others by general conditions. . . . Not all our troubles are capable of cooperative solution, but there are many things we can do if we will work together. We are hoping at this convention to find a remedy."

THE clear-cut policy of MC with reference to advertising acceptance was stated as follows: "THE MANUFACTURING CONFECTIONER *is essentially a manufacturers' publication and therefore is a logical advertising medium only for confectioners' supplies and equipment. The advertising pages of* THE MANUFACTURING CONFECTIONER *are open only for messages regarding reputable products or propositions of which the manufacturers of confectionery and chocolate are logical buyers.*

OUR editor went to bat in defense of the chain store system, which had been the target of criticism among manufacturers distributing through jobbing channels. It was pointed out that the chain store had simply progressed to meet the public demand for price economies and fresher products.

JUNE, 1927, carried the "five resolutions for victory" as the first formula for alleviating the cocoa situation. The resolutions included growing cocoa beans in American colonies; favoring the use of Bahia and other competitive cocoas grown within the Western Hemisphere; petitioning the President to advance the duty on foreign manufactured chocolate products fifty per cent; condemnation of the practice of trading on the Exchange; and condemnation of the practice of price guarantees resulting in wholesale overbuying of chocolate coatings and liquors and contributing to a serious condition of overproduction and an inflated demand for raw cocoa.

EDITORIALLY we covered talks made at the NCA convention, including the recommendations for cooperative action in granting and extension of credit, as prepared by Grover C. Haislip, Credit Manager, Williamson Candy Co.; report of the Traffic Committee for a fair deal on traffic rates by J. P. Garrow, Traffic Manager, Shotwell Manufacturing Co.; and a discussion by R. L. Purdon, Sugar and Confectionery Division, U. S. Department of Commerce on how we can profit by the Government's survey of confectionery markets and distribution to plan production and sales effort intelligently. Some of the reasons and reasoning behind the name calling (for candy bars) was covered in an article by Roy E. Hanson, Vice President, Milwaukee Printing Co., Milwaukee. A good candy bar name, said Mr. Hanson, must be distinctive; easy enough for a child to read and pronounce; able to stand the test of time; and snappy.

THEN and now these familiar names were among the listed advertisers: California Almond Growers' Exchange; Corn Products Refining Company; Fritzsche Bros.; H. Kohnstamm & Co.; Oakite Products, Inc.; Package Machinery Company; Union Confectionery Machinery Co.

CODE DATERS
NAME MARKERS
PRICERS
Gummed Tape Printers For The Candy Industry
Write for information
KIWI CODERS CORP.
3804-06 N. Clark St., Chicago 13, Ill.

RIBBONS for your Candies
Satins • Moires • Taffeta
Gros Grain • Rib-o-nit
Rayon and Chiffon
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111 NORTH CANAL STREET
CHICAGO 6, ILLINOIS

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Corrigan bulk dry sugar handling and storage systems convey sugar from unloading point to storage and from storage to production.
Improve production facilities
Lower operation costs
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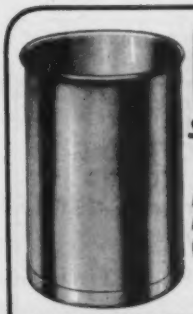

STANcase STAINLESS STEEL EQUIPMENT
STAINLESS STEEL DRUMS
MODEL 30--30 GAL.
MODEL 55--55 GAL.
(Covers available)
ECONOMY EQUIPMENT
RUGGEDLY CONSTRUCTED FOR LIFE TIME WEAR.
FULLY APPROVED BY HEALTH AUTHORITIES.
Manufactured by
The Standard Casing Co., Inc.
121 Spring St., New York 12, N. Y

The MANUFACTURING CONFECTIONER'S Clearing House

MACHINERY FOR SALE

FOR SALE: Racine Depositor, Hohberger Continuous Hard Candy Cooker, 1000 lb. hourly capacity, complete with vacuum pump; Bullerjahn Drier; Bausman Starch Machine; Double-arm puller; 16-inch Enrober with 50-ft. tunnel and compressor; Rostoplast machine with dies; Simplex Gas Fire Cooker with 2 kettles; 42-C Forgrove Wrapper; and Ideal Caramel Wrappers. Box No. 622, **The MANUFACTURING CONFECTIONER.**

FOR SALE: Hohberger Continuous Cream Machine; M-100 Mogul with D-100 Depositor; 32-inch N.E. Enrober; 24-inch Belturn (90°); Simplex Steam Cooker; D.F. Bar Wrapper with magazine feed; and 2 5-ft. Ball beaters. Box 623, **The MANUFACTURING CONFECTIONER.**

FOR SALE: 7½ HP Fondant machine purchased in 1947 for $1745.00. In satisfactory working condition. Will sacrifice at $600.00. Reply to Captial Bakers, Inc., P.O. Box 1225, Harrisburg, Penn.

FOR SALE:

One—26" John Werner Electric Beater
One—75 lb. John Werner Chocolate Warmer
One—2 girl coating table
One—1 horsepower Frigidaire Refrigerating unit. Box No. 627, **The MANUFACTURING CONFECTIONER.**

FOR SALE: Simplex Steam Vacuum Cooker, with Vacuum Pump. Box 629, **The MANUFACTURING CONFECTIONER.**

FOR SALE: Berton automatic Plastic Machine, with Batch Roller, Sizer, Cooling Conveyor and dies. In fine condition. Box No. 630, **The MANUFACTURING CONFECTIONER.**

FOR SALE: National Equipment Steel Mogul with Currie Leader and Currie Stacker. Box 631, **The MANUFACTURING CONFECTIONER.**

FOR SALE: Rose FWT Fold and Twist Wrapper. Has seen little service; reasonably priced. Box No. 632, **The MANUFACTURING CONFECTIONER.**

Subscribe to
THE MANUFACTURING CONFECTIONER
Only $3.00 per year—$5.00 for 2 years.

- Feature Articles
- Candy Clinic
- Candy Packaging
- Candy Equipment Preview
- Technical Literature Digest
- Manufacturing Retailer
- Book Reviews

And many other features

9 So. Clinton—Chicago 6

POSITION WANTED

POSITION WANTED: Now production Supt. with national mfgr. of 5 & 10 cent hard candy roll specialties. Wish to hear from someone that is top quality and prod. minded in this field. Interested in sound salary and comm. or part ownership. Box No. 625, **The MANUFACTURING CONFECTIONER.**

POSITION WANTED: Production Engineer; age 29; 6 years' experience with leading manufacturer and coatings in U.S.A. and Europe. Available about July 15. Box No. 628 **The MANUFACTURING CONFECTIONER.**

POSITION WANTED: Production Man. All phases of production, supervision and some administrative experience. Most experience has been in biscuit (icing) and candy manufacture. Present position Supt. candy manufacturer. Box No. 529, **The MANUFACTURING CONFECTIONER.**

HELP WANTED

HELP WANTED: Man familiar and experienced with process and manufacturing of malted milk balls. Box No. 633, **The MANUFACTURING CONFECTIONER.**

HELP WANTED: Experienced candy maker on hand rolls and wafer work. Age 25-50. Good morals. No drinkers. Mid-western town. Good pay. Box No. 621, **The MANUFACTURING CONFECTIONER.**

HELP WANTED: Candy maker experienced in cream work and in general line of candies. Must be able to take charge of help. Position is in medium sized factory in Philadelphia area. Give experience & salary desired in reply. Box No. 624, **The MANUFACTURING CONFECTIONER.**

SALES REPRESENTATIVES

LINES WANTED: Good volume, high class side line, while contacting Ice Cream, Confectionary and Bakery manufacturers. Box No. 626, **The MANUFACTURING CONFECTIONER.**

BUSINESS FOR SALE

BUSINESS FOR SALE: Modern stucco factory building with two modern five-room apartments; candy and chocolate machinery at White Plains, New York. Inquire: Telephone—White Plains 9-1187 or White Plains 9-7331, Address: F. H. Berges, Jr., 175 Main Street., White Plains, New York.

MISCELLANEOUS

WE BUY & SELL

ODD LOTS • OVER RUNS • SURPLUS

"Cellophane" BAGS

SHEETS • ROLLS • SHREDDINGS

Cellophane rolls in outer boxes 100 lb. or more

ALSO MADE OF OTHER CELLULOSE FILM

Wax - Glassine Bags, Sheets & Rolls

Tying Ribbons—All Colors & Widths — **Scotch Tape Clear & Colors**

Diamond "Cellophane" Products

Harry L. Diamond — **Robert I. Brown**

"At Your Service"

74 E. 28th St., Chicago 16, Illinois

CLASSIFIED ADVERTISING
For the Convenience of Our Readers

The Manufacturing Confectioner's classified section is designed to aid candy men in obtaining or disposing of used equipment, services and miscellaneous items. You will find that it pays to read and use the classified section.
In replying to classified ads with box numbers, please address letters to: Box Number, The Manufacturing Confectioner, 400 W. Madison St., Chicago 6, Ill.

Minimum insertion is 3 lines at 35c per line.
70c for bold face; not subject to agency discounts.

THE MANUFACTURING CONFECTIONER
9 S. Clinton Street — **Chicago 6, Illinois**

Overstocked!

Hundreds of machines All types and sizes

REDUCTIONS UP TO 50% OF OUR REGULAR PRICES

For A Limited Time

You do not need a lot of money now to purchase machinery to improve or expand your production and lower operating costs.

With our new BARGAIN PRICES—REASONABLE CASH DOWN PAYMENT—and EXTENDED TIME PAYMENTS—to meet your budget, you can buy the equipment which you will need for the coming season without large expenditure. Reasonable deferred payment terms can be arranged. No carrying charges—only 6% interest on the unpaid balance.

Here are a few examples of our reduced prices:

National Equipment Continuous Cooker.

regularly $2950

reduced to $2250

Ball 5 ft. Cream Beater.

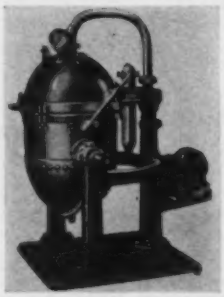
regularly $750

reduced to $475

National Equipment 2000 lb. Chocolate Kettles, overhead driven.

regularly $2250

reduced to $1250



Simplex Steam Vacuum Cooker.

regularly $2450

reduced to $1650

UNION Rebuilt Machinery

Established 1912

Model M Die Pop Machine.

regularly $1950

reduced to $1250

Immediate Deliveries

Act Now While These Bargains Are Offered

Write TODAY For Complete Details

UNION CONFECTIONERY MACHINERY CO., INC.

318-322 Lafayette St. Canal 6-5333-4-5-6 New York 12, N. Y.

167 N. May St. Seely 3-7845 Chicago, Illinois

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Get Pfizer's
money-saving citric acid
with the water "squeezed out"!

CITRIC ACID ANHYDROUS

● Pfizer Citric Acid *Anhydrous* is your old standby Pfizer Citric Acid in a form that will save you money. You'll find this acidulant meets all the requirements of purity of the U. S. Pharmacopoeia. In fact, it differs from Citric Acid U.S.P. only in that it contains no water of crystallization. (Which accounts for 8.58% of the weight of the U.S.P. product.)

Since the anhydrous material does not "dry out," you won't be troubled with variations in acidity from one batch to another. In addition to this convenience, consider the savings you'll make on shipping and storage charges...10 drums of the anhydrous contain as much actual citric acid as 11 drums of the U.S.P. You save 8½ lbs. shipping weight for every 100 lbs. of Citric Acid U.S.P. you formerly used.

Add up these advantages of Citric Acid Anhydrous and contact Pfizer today for your requirements. It's a simple matter to revise formulas. If you wish more information, write for Bulletin F-201.

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630 Flushing Ave., Brooklyn 6, N. Y.
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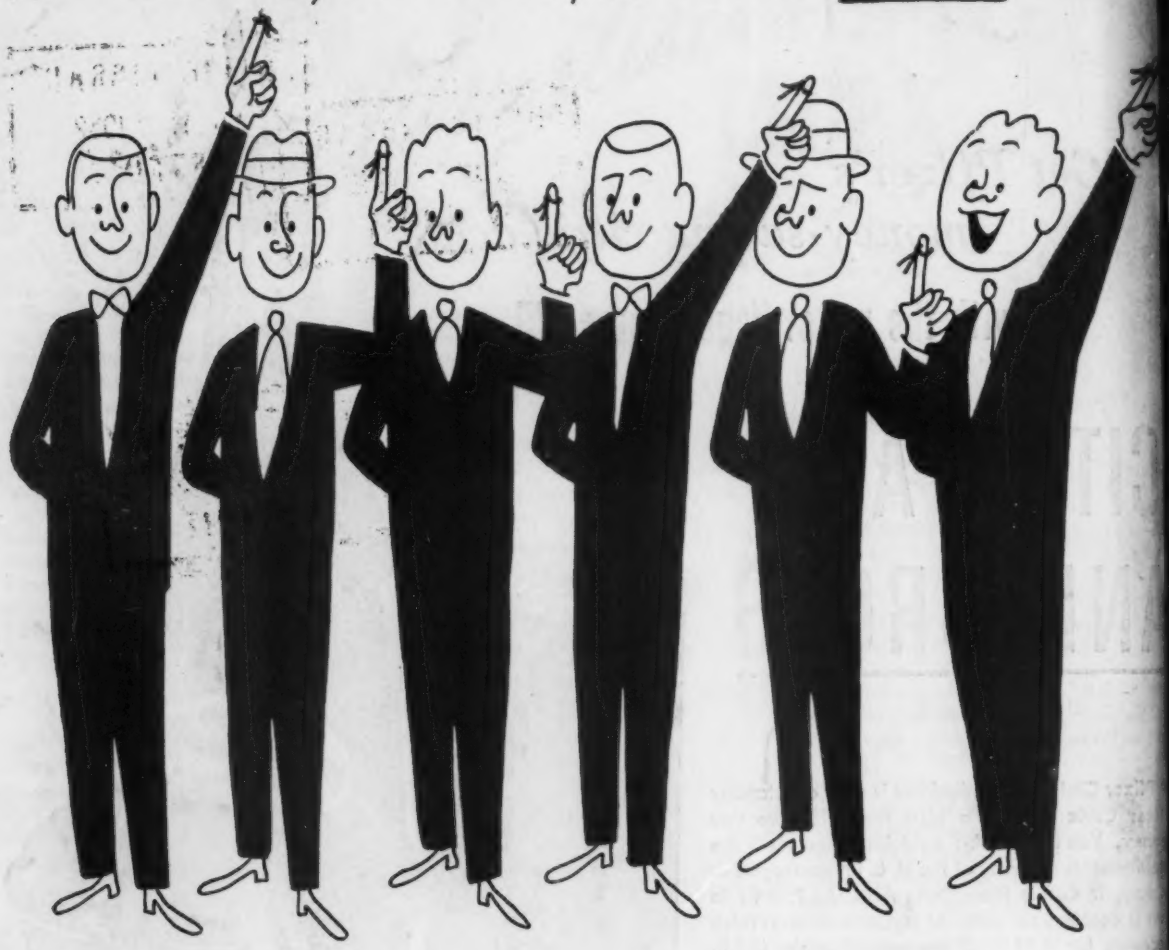

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Use Norda Flavors—true to type, true to taste. Concentrated richness makes both genuine and superior imitation Norda Flavors go farther and save money for you. Ask for free samples.

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Norda ESSENTIAL OIL AND CHEMICAL COMPANY, INC.
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